

2023 Annual Monitoring Report

Final

City of Clarence-Rockland
Clarence-Rockland

March 26, 2024

Jp2g Project # 17-6021G





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EXECUTIVE SUMMARY

Jp2g Consultants Inc. (Jp2g) was retained by the City of Clarence-Rockland to conduct the 2023 Annual Environmental Monitoring Program for the Clarence Waste Disposal Site (WDS). The 2023 monitoring program included sampling and evaluation of ground and surface water quality in the vicinity of the site, as well as WDS gas monitoring. The monitoring program and related reporting was completed to fulfill the requirements of the Environmental Compliance Approval (ECA) in effect for the WDS. The evaluation of the 2023 monitoring program results indicates the following:

- A groundwater divide traverses the central part of the landfill site and directs the leachate groundwater flow primarily to the east/northeast within the shallow overburden sand unit. Some leachate migration into the deeper units has also occurred.
- Significant landfill leachate impacts continue to be detected on the eastern side of the waste mound where wells present elevated concentrations of several leachate indicators such as chloride, total dissolved solids, boron, iron, hardness, manganese, sodium and dissolved organic carbon (DOC). Conditions appear relatively stable throughout the site.
- The groundwater reasonable use concept concentrations were exceeded for two or more trigger parameters in all directions except along the northwest corner, in the area selected as representative of the background groundwater concentrations where only one intermittent exceedance was reported. Sources other than the landfill leachate appear to be influencing the groundwater quality along the southern and eastern boundaries, making it difficult to confirm the efficiency and adequacy of the cut-off wall and current attenuation zones in these areas.
- In 2023, surface water impacts attributed to the landfill leachate are limited to the on-site attenuation pond. The addition of surface water stations upstream of the western ditch provides further evidence that ambient conditions other than the landfill are responsible for the exceedances reported in the western ditch/stream and that snow disposal is the main contributor to the exceedance reported in the eastern ditch.

The monitoring program at the WDS should continue in 2024 in the spring and summer for groundwater, and in the spring, summer and fall for surface water. Mitigation measures and modifications to the monitoring program have been recommended based on the 2023 annual monitoring results.



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1 INTRODUCTION

The Clarence-Rockland Landfill Site is located on Lot 15, Concession IV in the former Township of Clarence, United Counties of Prescott and Russell, Ontario. The site is located north of Lalonde Road approximately 3 kilometers north of Bourget, Ontario and 3 kilometers southwest of St. Pascal, Ontario (see Key Plan, **Figure 1**).

The landfill is owned and operated by the City of Clarence-Rockland (the City). It is an open landfill accepting solid non-hazardous municipal waste, with a total site area of 50 ha and approved waste footprint of 12 ha. Additional operational information, such as the approved and actual volumes of waste at the site, the projected site life, the area of the current waste cell footprint, and information on final cover, slopes, engineering controls and recent site developments, can be found in the annual operations report (provided under separate cover).

This report provides a discussion of the groundwater and surface water geochemistry (including apparent trends over time) at the site based on field data obtained during the 2023 monitoring program carried out by Jp2g Consultants Inc. This report is intended to fulfil part of Condition 6(7) (pertaining to the annual monitoring report) of Amended Provisional Certificate of Approval (C of A, now ECA) No. A471203, dated October 21, 2009 and Condition 7.2 (pertaining to annual reporting) of C of A No. 3362-6D7PL4, dated June 24, 2005. The Monitoring and Screening Checklist is presented in **Appendix A**.

1.1 Site History

According to McNeely Engineering Consultants Limited (1991), the site was opened in the early 1970's to provide waste disposal for the former Township of Clarence residents only. Waste placement began using a trench and fill operation. The depth of the trenches was apparently restricted due to the relatively high groundwater table and caving of the surficial granular layer into the trenches during excavation and operation. According to MacLaren Engineers Inc. (1982), the trench method of operation was converted to an area method of fill in 1982.

The landfill site was originally licensed under Provisional C of A No. A471203 dated November 10, 1980 to accept domestic, commercial and non-hazardous solid industrial waste. An Emergency Provisional C of A No. A471203 dated December 13, 1991 was issued after the local Ministry of the Environment and Climate Change (MOECC) office in Cornwall, now the Ministry of Environment, Conservation and Parks (MECP) (the Ministry), advised the former Township of Clarence that their landfill had reached its approved capacity. One of the conditions of the Emergency C of A was that the former Township prepare and submit to the Ministry an application and supporting documentation for a Waste Disposal Site Interim Expansion. The former Township of Clarence complied and was issued an Interim C of A No. A471203 in June 1994. During 1995, the former Township of Clarence embarked on an environmental assessment process to identify a twenty-five-year strategy for management of its waste after June 1999.

On January 1, 1998, the Township of Clarence amalgamated with the Town of Rockland to form the City of Clarence-Rockland, which is the current owner and operator of the landfill.



In October 2000, an application for landfill site expansion under the Environmental Protection Act was submitted to the Ministry. This application included the 2000 Golder Associates report on hydrogeological and geotechnical design considerations. Provisional C of A No. 471203 was issued by the Ministry on October 18, 2001 for the expansion of the landfill site (50 ha total site area and 12 ha waste footprint). An amended Provisional C of A No. A471203 was issued in March 23, 2004, October 21, 2009, September 9, 2015, August 19, 2016 and December 20, 2018. The Ministry also issued C of A No. 3362-6D7PL4 on June 24, 2005 for the operation of the on-site pond as a natural attenuation facility for stormwater runoff and leachate-impacted groundwater.

The current ECA for the site can be found in **Appendix B** of this document.

1.2 Site Contact Information

The site contacts are shown in **Table 1**.

Table 1: Site Contacts

| Contact | Name | Address | Phone Number | Fax Number | Email Address |
|---|--|--|------------------------|--------------|--------------------------------|
| Site Owner/Operator | City of Clarence-Rockland | 1560 rue Laurier Street, Rockland, ON K4K 1P7 | 613-446-6022 | 613-446-1497 | |
| Groundwater & Surface Water CEP | Andrew Buzza, P.Geo Jp2g Consultants Inc. | 1150 Morrison Drive Suite 410 Ottawa, ON K2H 5B7 | 613-828-7800 | 613-828-2600 | Andrewb@jp2g.com |
| Contact Person for Environmental Issues at Site | Denis Longpré City of Clarence-Rockland | 1560 rue Laurier Street, Rockland, ON K4K 1P7 | 613-446-6022 ext. 2299 | 613-446-1497 | dlongpre@clarence-rockland.com |

1.3 Ministry of the Environment, Conservation and Parks Comments

The following correspondence was received/issued during the 2023 monitoring period:

- Ministry, Solid Non-Hazardous Waste Disposal Site Inspection Report, Clarence-Rockland (Bourget) Landfill Site, March 13, 2023.
- City of Clarence-Rockland, Re: Solid-Non-Hazardous Disposal Site Inspection, Clarence-Rockland (Bourget) Landfill Site, June 30, 2023.

The comments from the March 2023 inspection report along with the City of Clarence-Rockland’s response are summarized in **Table 2**. The table also presents the one outstanding comment from the previous 2017 site inspection report. Refer to **Appendix C** for the detailed comments and responses and for the historical correspondence.



Table 2: MECP Comments and Response

| March 2023 Inspection Report Comments | City of Clarence-Rockland Response |
|---|---|
| Item 1: Submit a workplan with specific target dates for the completion of the steps to bring the site into compliance with ministry Guideline B-7. | The workplan was presented in the letter response dated June 30, 2023. |
| Item 2: Submit a workplan with specific target dates for the completion of the steps to divert snow disposal to a new location. | The City has completed a comprehensive snow disposal facility (SDF) analysis and is in negotiation following an offer to purchase a new property made in mid-February 2023. |
| Items 3: Submit a workplan with specific target dates for the completion of the securement of all monitoring in accordance with Condition 8(10) of the ECA. | Monitoring well maintenance is on-going and is part of the regular upkeep of the site. Reporting on the status is typically provided in the respective annual reports. See Section 2.2 of the current report for an update on monitoring well maintenance and status. |
| Item 4: Submit an application to amend ECA No. A471203 with: <ul style="list-style-type: none"> a) An updated Design, Operations and Maintenance Plan b) An updated Trigger Mechanism and Contingency Plans | The Ministry in their letter of March 13, 2023 indicated that the 2022 Annual Monitoring report will be submitted for “Technical Support Section” review and comment. Once the technical comments are received, a timeline for submission of an application to amend the ECA will be provided. |
| Item 5: Submit an application to amend ECA No. 3362-6D7PL4 with updated works/drainage plans resulting from the site modifications performed since 2017. | The requirement of having a “drainage plan” prepared as a result of the site entrance configuration appears to be based on a planned “reworking” of the site entrance that did not take place. The site entrance was not altered other than with the addition of scales, scale house and a small Household Hazardous Waste (HHW) facility. These features will not result in any changes to the site drainage, and accordingly there is no need to amend the ECA. |
| June 2017 Inspection Report Comments | City of Clarence-Rockland Response |
| Extend the contaminant attenuation zone (CAZ) at the west property boundary where reasonable use policy concentration exceedances have consistently been observed. | The discussion regarding the additional CAZ is still on-going. |



2 MONITORING PROGRAM

2.1 Objectives

The 2023 groundwater and surface water programs were carried out in accordance with Conditions 8(5) and 8(6) of Amended Provisional C of A (now ECA) No. A471203. The objectives of the program were to monitor background water quality; leachate quality; water quality within the area impacted by landfill leachate; and water quality along the interpreted leading edge of the leachate-impacted plume. Monitoring wells were also monitored for methane gas to assess the potential risks with respect to subsurface methane gas migration towards existing and proposed on-site buildings. Groundwater and surface water sampling locations at the landfill site are shown on **Figure 2**. Site stratigraphy and monitoring well construction is presented on **Figure 3** and in **Appendix D**.

2.2 Groundwater Monitoring

The groundwater monitoring well sampling was conducted during the spring (May 3-4-5, 2023) and summer (August 14-15-16, 2021). The groundwater monitoring well program included measurement of groundwater elevations and collection of groundwater samples for subsequent chemical analysis for routine and surveillance parameters. A detailed description of the groundwater sampling protocol is presented in **Appendix E**. Laboratory reports of analysis are presented in **Appendix F**. The details of the monitoring wells and the groundwater levels for the 2023 program are presented in **Appendices G-1** and **G-2**, respectively. The 2023 inorganic, historical inorganic analytical results, historical volatile organic compounds (VOCs) and domestic well (scale house) are presented in **Appendices H-1, H-2, H-3 and H-4**, respectively.

The routine parameters included chloride, hardness, sodium, ammonia, iron, manganese, boron, total phosphorus, dissolved reactive phosphorus (ortho phosphate), alkalinity, dissolved organic carbon (DOC) and total dissolved solids (TDS). Surveillance parameters included all of the routine parameters plus calcium, magnesium, potassium, aluminum, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, silicon, silver, strontium, sulphur, thallium, titanium, vanadium, zinc, biochemical oxygen demand (BOD), nitrite, nitrate, sulphate, total kjeldahl nitrogen (TKN), chemical oxygen demand (COD) and phenols. Selected wells that are part of the surveillance package were also analyzed for VOCs.

The temperature, pH and conductivity of the groundwater samples were measured in the field at the time of sample collection. All groundwater samples were placed in coolers with ice packs until they were delivered to the private analytical laboratory. All laboratory chemical and physical analyses on groundwater samples were completed by Caduceon Environmental Laboratories in Ottawa, Ontario.

Several monitoring well repairs and upgrades were completed in 2021. The elevation of the monitoring wells inner pipe (top) was surveyed in November 2021 following these repairs. These updated survey measurements have been used to calculate groundwater elevations (**Appendix G**) and will be used going forward. Photos of the wells are provided in **Appendix L**. Unless otherwise noted, the photos were taken in May 2023. Notes on the monitoring well status including maintenance completed and required are presented in **Appendix G1**. A fallen tree prevented access to G8-92 during the August 2023 sampling program. A fallen tree was also noted at G31-98. The trees should be removed before the spring 2023 sampling program.



The 2023 sampling program is summarized in **Table 2** and sampling locations are shown in **Figure 2**. All sampling planned for 2022 was completed unless the location was dry or otherwise inaccessible as shown in **Table 2**. Extra samples were collected from the scale house well in 2023 and analysed for the surveillance parameters. Duplicates were collected during each groundwater sampling event. A trip blank was also collected during both events and analysed for VOCs.

Table 2: 2023 Groundwater Sampling Program

| Well ID | Coordinates (Zone 18T) | | Required by ECA | VOCs | | Inorganics | |
|-----------------------|------------------------|----------|-----------------|-------------|-----------|----------------|----------------|
| | Easting | Northing | | Spring 2023 | Fall 2023 | Spring 2023 | Fall 2023 |
| P1-91 | 487233 | 5034554 | Y – S | √ | √ | √ (S) | √ (S) |
| P2-90 | 486888 | 5034453 | Y – R | | | √ (R) | √ (R) |
| P3-90 | -- | -- | N | | | Decommissioned | |
| P4-90 | 486847 | 5034686 | Y – S | | | √ (S) | √ (S) |
| P5A-91 | 487123 | 5034440 | N | | | | |
| P5B-91 | 487124 | 5034438 | Y – S | √ | √ | √ (S) | √ (S) |
| P6-91 | 487171 | 5034643 | Y – S | √ | √ | √ (S) | √ (S) |
| P7-91 | 486863 | 5034936 | N | | | | |
| G8A-92 | -- | -- | N | | | √ (R) | Not accessible |
| G8B-92 | -- | -- | N | | | √ (R) | Not accessible |
| G8C-92 | 486865 | 5034672 | Y – R | | | √ (R) | Not accessible |
| G9A-92 | 487202 | 5034432 | N | | | | |
| G9B-92 | 487202 | 5034432 | N | | | | |
| G9C-92 | 487205 | 5034434 | N | | | | |
| G11-92 | -- | -- | N | | | Destroyed | |
| G12-92 ⁽¹⁾ | 487372 | 5034397 | Y – S | | | √ (S) | √ (S) |
| G13-92 | 487063 | 5034945 | Y – R | | | √ (R) | √ (R) |
| G14-92 | 487035 | 5034756 | N | | | | |
| G15-92 | 487100 | 5034621 | N | | | | |
| G17-92 ⁽¹⁾ | 487332 | 5034516 | Y – R | | | √ (R) | √ (R) |
| G18-92 | 486944 | 5034963 | Y – S | | | √ (S) | √ (S) |
| G19-92 | -- | -- | N | | | Destroyed | |
| G20-92 | 487056 | 5034389 | Y – R | | | √ (R) | √ (R) |
| G21-94 ⁽¹⁾ | 487260 | 5034413 | Y – R | | | √ (R) Dup #2 | √ (R) Dup #2 |
| G23-94 | 486854 | 5034576 | N | | | | |
| G24-94 | -- | -- | N | | | Destroyed | |
| G25-94 | 486845 | 5034678 | N | | | | |
| G26-94 | 486833 | 5034800 | Y – S | | | √ (S) | √ (S) |
| G27-97 | 487159 | 5034790 | Y – R | | | √ (S) | √ (R) |
| G28-97 | 487266 | 5034643 | Y – R | | | √ (R) | √ (R) |
| G29-97 | 486851 | 5034577 | Y – S | | | √ (S) | √ (S) |
| G30-97 | 487245 | 5034672 | N | | | | |
| G31A-98 | 487352 | 5034584 | N – R | | | √ (R) Dup #3 | √ (R) Dup #1 |
| G31B-98 | -- | -- | N | | | √ (R) | √ (R) |
| G32A-98 | 486858 | 5034575 | N | | | √ (S) | √ (S) |
| G32B-98 | -- | -- | N | | | √ (S) | √ (S) |



| Well ID | Coordinates (Zone 18T) | | Required by ECA | VOCs | | Inorganics | |
|--------------------|------------------------|----------|-----------------|-------------|-----------|-------------|-----------|
| | Easting | Northing | | Spring 2023 | Fall 2023 | Spring 2023 | Fall 2023 |
| G33A-98 | 487116 | 5034947 | N | | | | |
| G33B-98 | 487116 | 5034947 | N | | | | |
| G36-01 | 486934 | 5034487 | Y – R | | | √ (R) | √(R) |
| G37-01 | 486941 | 5034357 | Y – S | | | √ (S) | √ (S) |
| G38-03 | 486900 | 5034599 | Y – R | | | √ (R) | √ (R) |
| G39-07 | 487311 | 5034826 | Y – R | | | √ (R) | √ (R) |
| G40-07 | 487414 | 5034671 | Y – R | | | √ (R) | √ (R) |
| G41-10 | -- | -- | N | | | Destroyed | |
| G42-10 | 487612 | 5034816 | Y – S | | | √ (S) | √ (S) |
| G43-11 | 487463 | 5035074 | Y – S | | | √ (S) | √ (S) |
| Scale House | | | | | | √ (S) | √ (S) |
| Trip Blank | | | R | √ | √ | - | - |

Note:

√: Sample collected as planned.

Dry: Sample planned but not collected

Y: Yes, N: No, R: Routine Parameters, S: Surveillance Parameters, DUP: Blind duplicate

1. A cut-off wall was constructed along the southern property boundary of the site during the summer of 2000 separating these monitors from the overburden groundwater plume.

2.3 Surface Water Monitoring

The surface water monitoring sessions were conducted during the spring (May 3-4-5, 2023), summer (August 14-15-16, 2023) and fall (September 29, 2023). The surface water monitoring program included the collection of surface water samples for subsequent chemical analysis for routine and surveillance parameters. The routine parameters included chloride, hardness, sodium, ammonia and unionized ammonia, iron, manganese, boron, total phosphorus, alkalinity, DOC and TDS. Surveillance parameters included all of the routine parameters plus calcium, magnesium, potassium, aluminum, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, silicon, silver, strontium, sulphur, thallium, titanium, vanadium, zinc, BOD, nitrite, nitrate, sulphate, TKN, COD and phenols.

The temperature, pH, conductivity and dissolved oxygen content of the surface water samples were measured in the field at the time of sample collection.

All surface water samples were placed in coolers with ice packs until they were delivered to the private analytical laboratory. A detailed description of the surface water sampling protocol is presented in **Appendix E**. All laboratory chemical and physical analyses on surface water samples were completed by Caduceon Environmental Laboratories in Ottawa, Ontario. Laboratory reports of analysis are presented in **Appendix F**. The 2023 surface water program is presented in **Table 3**. The 2023 and the historical concentrations up to 2023 are presented in **Appendices I-1 and I-2**, respectively. Photographs of the sampling locations are shown in **Appendix L**. All sample planned were collected unless the station was dry.



Table 3: 2023 Surface Water Program

| SW ID | Inorganic Package Planned for 2022 | Spring 2023 | Summer 2023 | Fall 2023 | UTM Easting (Zone 18) | UTM Northing (Zone 18) |
|--------------------|------------------------------------|----------------|----------------|----------------|-----------------------|------------------------|
| S1 | Routine | √ (R) | √ (R) | √ (R) (Dup #1) | 486827 | 5034474 |
| S2 | Surveillance | √ (S) (Dup #1) | √ (S) (Dup #3) | √ (S) | 486791 | 5034716 |
| S3 | Routine | √ (S) | Dry | Dry | - | - |
| GS6 | Surveillance | √ (S) | √ (S) | √ (S) | 486712 | 5034186 |
| GS8 | Routine | √ (R) | √ (R) | √ (R) | - | - |
| GS11 | Surveillance | √ (S) | √ (S) | √ (S) | 487240 | 5034686 |
| GS12 | Routine | √ (R) | √ (R) | √ (R) | 487272 | 5034684 |
| GS15 | Surveillance | √ (S) | √ (S) | √ (S) | 487253 | 5034871 |
| GS17 | Surveillance | √ (S) | √ (S) | Dry | 486819 | 5034427 |
| GS20 | Surveillance | √ (S) | √ (S) | √ (S) | 487601 | 5034883 |
| GS21 | Routine | √ (R) | √ (R) | √ (R) | 487517 | 5034532 |
| GS22 | Surveillance | √ (S) | √ (S) | √ (S) | | |
| GS23 | Surveillance | √ (S) | Dry | Dry | | |
| Field Blank | Routine or Surveillance | -- | -- | -- | -- | -- |

R: Routine package analyzed, S: Surveillance package analyzed.

Details of the surface water features in the vicinity of the site and the associated surface water monitoring stations are included in **Table 4**. The table also presents the discharged measured during the 2023 monitoring program. The total precipitation recorded 48 hours prior to the 2023 sampling events (as per the Ottawa International Airport Climate Station (Ottawa INTL A) is 20.2 mm in May, 6.5 mm in August, and 0 mm in September.



Table 4: Surface Water Features and Flows in 2023

| Surface Water Feature | Type of Surface Water | Drainage Pattern / Outlet | Staff Gauge Location | Sampling Location | Flow Spring 2023 L/sec | Flow Summer 2023 L/sec | Flow Fall 2023 L/sec |
|---------------------------------|-----------------------------|--|---------------------------|-------------------|------------------------|------------------------|----------------------|
| Western Stream | Perennial | Flows north then east toward Cobbs Lake Creek and the South Nation River | N/A | GS6 | 24.4 | 6.3 | No flow |
| | | | | S1 | 75 | 2.3 | 0.3 |
| | | | | S2 | 275 | 0.5 | 3.8 |
| | | | | GS8 | 100 | 7.3 | 1.7 |
| Northern periphery | Surface run-offs (man-made) | Flows north then west towards the western stream | N/A | S3 | No flow | Dry | Dry |
| Northern Ditch | Perennial | Flows south from farmer’s field and discharges to western ditch | N/A | GS23 | 40 | Dry | Dry |
| Western Ditch | Perennial | Flows east and discharges to western stream | N/A | GS17 | 55 | 2.2 | Dry |
| | | | | GS22 | 40 | 1.2 | No flow |
| On-Site Pond | Perennial (Man-Made) | No outlet | South End; Staff Gauge #3 | GS11 | 4.4 | 0.2 | No flow |
| | | | | GS12 | No flow | No flow | No flow |
| | | | | GS15 | No Flow | No Flow | No Flow |
| Southeast Snow Stockpile | Surface run-offs (man-made) | Flows north then east toward Cobbs Lake Creek | N/A | GS20 | 108 | 18.8 | 1.9 |
| | | | | GS21 | 57.5 | 3.9 | No flow |

2.3.1 Staff Gauges in the On-Site Pond

Staff Gauge #3 was installed in 2006 near the south end of the on-site pond (**Figure 2**) to replace Staff Gauges #1 and #2, which were under water. Staff Gauge #3 was replaced in 2008 but could not be located in recent sampling events. As a result, a new Staff Gauge #3 was installed on May 1, 2017. The reading after installation indicated a water level in the pond of 404 mm. In September and November 2017, the Gauge readings were 470 mm and 235 mm, respectively. In 2018, the staff gauge was destroyed again because it had been installed in irregular flood conditions. It was reinstated again in the fall of 2018 and the water level at that time was 49.922 masl for a corresponding gage reading of 200 mm.

Readings from the pond staff gauge were difficult to obtained in 2019. In April, the staff gauge was completely submerged with water while in September, the staff gauge could only be observed from a distance. It was noted that the water level in the pond in September 2019 was consistent with previous years and was at about 2.5 feet below the top of the gauge.

In 2020, the staff gauge was destroyed again from seasonal freeze-thaw movement and the pond water level was obtained from survey equipment. Moving forward it was recommended to survey the water



level coincidental with the annual site survey. The top of the water in the pond was 50.228 masl on August 2023 and 49.571 masl on November 6, 2023.

2.4 Gas Monitoring

Monitoring wells were monitored for methane gas during the spring and fall groundwater monitoring program. The gas was monitored in the riser or the protective casing of the monitoring wells using a head held detector.

2.5 Data Quality

The quality of the laboratory data used in this report (i.e., groundwater and surface water quality results) was evaluated based on laboratory quality assurance/quality control (QA/QC) results, field duplicate results and trip blanks results.

All laboratory chemical and physical analyses on groundwater and surface water samples were performed by Caduceon Environmental Laboratories in Ottawa, Ontario, which is accredited to ISO/IEC 17025:2005 (E), General requirements for the competence of testing and calibration laboratories. The laboratory performs internal QA/QC checks including matrix spikes, spiked blanks, method blanks and laboratory duplicates.

A trip blank was collected in the spring and fall of 2023 and analyzed for VOCs. Results are presented in **Appendix H-3** and were all below the detection limit.

The QA/QC program included duplicate groundwater samples and surface water samples. All duplicates were analyzed for the inorganic parameters. The relative percent differences (RPDs) were calculated when detected concentrations in both samples were greater than five (5) times the laboratory Method Detection Limit (MDL) (see **Appendix H-1** and **Appendix I**).

The standards used for RPD were <50% for a single parameter and <20-25% on average. In 2023, all groundwater and surface water average RPDs were less than 25% except for the August 2023 duplicate samples collected from G31A-98 which has an average RPD of 33%. RPDs above the 50% were measured at this location for ammonia nitrogen (77%), dissolved organic carbon (DOC) (71%), ortho phosphate (165%). A review of the historical results at this location indicates that the concentrations in the sampling pairs are generally within historical range. This suggests that the high RPDs at this location are due to the field variability as opposed to sampling or laboratory biases.

The quality of the field data used in this report was ensured by using calibrated equipment. As discussed in the description of groundwater and surface water sampling protocols (**Appendix E**), the field equipment used to measure temperature, pH, conductivity and dissolved oxygen was calibrated each day prior to use.

Based on the laboratory and field QA/QC protocols, the 2023 laboratory and field data presented in this report are determined to be of acceptable quality and reliable for use.



3 PHYSICAL SETTING

3.1 Hydrostratigraphic Units

The overburden geological conditions in the vicinity of the landfill site can be broadly divided into three layers: a discontinuous surficial granular layer comprising topsoil, silt, silty sand, sandy silt and sand (0 to 5.9m thick); a silty clay layer (7.8 to 12.1m thick); and a glacial till layer (2.4 to 4.1m thick). The bedrock surface exists at about 17 to 26m in depth and consists of dark grey shale. Based on its low hydraulic conductivity, the silty clay layer was interpreted as a confining layer that could restrict most groundwater flow from the landfill to migration within the surficial granular layer. As a result, the current groundwater monitoring program is focused on monitoring wells screened in the granular layer, with selected monitoring wells screened in the silty clay. Toward the eastern property boundary, the granular layer pinches out where peat (0.6 to 2.1m) overlies the silty clay. The monitoring well screen position with respect to the difference geological units is presented in **Appendix G-1**.

A historical hydrostratigraphic cross-section through the site is presented as **Figure 3**. Further details on the physical hydrogeological setting of the landfill site are described in the report on hydrogeological and geotechnical design considerations for the landfill expansion (Golder Associates, 2000).

3.2 Water Table Elevations and Hydraulic Gradients

The recorded water level data from 2023 is presented in **Appendix G-2**. Groundwater elevations and the inferred water table contours for the upper overburden units (sand and silty clay) in the spring and fall 2023 are presented on **Figures 4** and **5**, respectively.

Consistent with previous years, the groundwater elevations were generally higher in the spring. The horizontal groundwater flow direction within the shallow overburden is interpreted to be primarily toward the east/northeast in both the spring and summer. The groundwater divide observed previously over the central part of the landfill is again apparent in 2023.

On the east side of the divide, horizontal gradients continue to decrease with distance from the landfill as indicated by closer contour lines on the west side of the pond than on the east side. The groundwater elevations surrounding the pond suggest a piezometric surface of approximately 50 masl across the pond which is consistent with the pond 2023 surface water elevation (see **Section 2.3.1**).

The difference in elevations between either side of the cut-off wall this year (G9-92/G21-94) and (P1-91/G17-92) are consistent with the elevation contours and the general horizontal flow direction to the east/northeast. This suggests that the wall's influence on groundwater flow is only localized.

Based on groundwater elevations in 2023, horizontal hydraulic gradients ranged from 0.011 on the eastern part of the site (between G40-07 to G42-10; spring elevation 49.95 and 47.54 masl, respectively over 210 m) to 0.074 immediately upgradient of the on-site pond (between G13-92 and G33-98B; spring elevation 54.09 and 49.67 masl, respectively over 60 m). These are in the same order of magnitude as previously reported.



In 2023, multilevel wells generally indicated downward gradients within the sand unit (P5-91) and between the sand unit and the silt unit (G8-92 and G9-92). This suggests groundwater infiltration in the northwest area of the site, from the sand to the silt unit and near the cut-off wall.

Monitoring wells G31-98, G32-98, and G33-98 are multilevel wells with screens located in the deeper glacial till unit and bedrock shale interface. In 2023, the two levels at G31-98 and G33-98 are generally very similar indicating predominantly horizontal flow at depth. The levels at G32-98 indicate a slight upward gradient in 2023.

3.3 Horizontal Hydraulic Conductivity

Rising-head tests were previously carried out to estimate the horizontal hydraulic conductivity of the geological units present at the site (Golder Associates, 2000). The range and geometric mean of the horizontal hydraulic conductivity estimates were:

- For the surficial granular layer, a range of 1.5×10^{-6} metres per second (m/s) to 5.6×10^{-5} m/s, and a geometric mean of 8.6×10^{-6} m/s based on fourteen horizontal hydraulic conductivity estimates;
- For the weathered crust of the silty clay layer, a range of 1.1×10^{-8} m/s to 5.8×10^{-8} m/s based on two horizontal hydraulic conductivity estimates;
- For the silty clay, a range of 3.5×10^{-8} m/s to 5.2×10^{-10} m/s, and a geometric mean of 4.0×10^{-9} m/s based on five horizontal hydraulic conductivity estimates;
- For the glacial till, a range of 8.0×10^{-5} m/s to 1.1×10^{-6} m/s based on two horizontal hydraulic conductivity estimates; and
- For the shale bedrock, a range of 1.1×10^{-5} m/s to 2.2×10^{-7} m/s, and a geometric mean of 2.2×10^{-6} m/s based on three horizontal hydraulic conductivity estimates.

3.4 Groundwater Flow Velocity

The range linear groundwater velocity, v , is calculated using the equation:

$$V = Ki/n$$

where v = average linear groundwater velocity in units of length of time

n = dimensionless formation porosity

K = horizontal hydraulic conductivity in units of length per time

i = dimensions horizontal hydraulic gradient

For unconsolidated deposits such as silts and sands, typical porosity values range from 25 to 50 percent (Freeze and Cherry, 1979). An average porosity of 35 percent for the surficial granular layer was assumed to determine the average linear groundwater velocities in the vicinity of the landfill site.

Using the geometric mean horizontal hydraulic conductivity value for the sand unit (8.6×10^{-6} m/s) and the range of horizontal gradients presented above (0.011 to 0.074), the linear horizontal groundwater velocity within the sand unit across the site in 2023 ranged from approximately 8.5 to 57.3 m per year and is within the range of 2 to 62 metres per year previously reported.



3.5 Surface Water Conditions

Local surface water drainage is to the north by way of a stream on the west side of the site and a ditch on the southeast side of the site. The southeast ditch was realigned in 2009 to flow on the south and east (as opposed to west and north) sides of the snow storage area, within the property boundaries. The ditch and stream converge north of the site and flow eastward into Cobbs Lake Creek approximately 1.7 km downstream. Cobbs Lake Creek flows south/southeast to the South Nation River, approximately 10.3 km downstream. There is no surface water outlet from the on-site pond but there are interactions between the pond and the groundwater.

In 2023, water was present in sufficient amount for sampling at all locations except for S3 and GS23 during the summer and fall event and for GS17 during the fall event. For the first time since 2018, water was present at S3 during one of the events in 2023 (i.e., the spring event). Stations GS22 and GS23 located west of the site, upstream in the western ditch were added to the sampling program in the summer 2021. Both stations were sampled in the spring of 2023 and GS22 was also sampled in the summer and fall of 2023. The surface water flow rates, when present, ranged from 0.2 to 275 L/sec. See **Table 4** for more details.

In 2023, the highest flow rates continue to be measured in the spring and the lowest rate in the summer. The spring 2023 flow rates were generally higher than previous years, with the largest difference measured at S2 (275 L/sec in 2023 vs 22 L/sec in 2022) and G20 (108 L/sec in 2023 vs 21 L/sec in 2022).

Beaver activities were first reported at the site in November 2017 and continue to be reported until 2022 in the form of a dam near GS12. In May 2023, the water level was high and the beaver dam was not visible but presumably still present. The presence of beavers does not appear to be having any net (positive or negative) effect on the drainage patterns or the size and shape of the pond. The pond control culvert was inspected in 2023 and was observed to be unblocked. No breach or breakout were observed. Orange staining was reported upstream of GS11 in the summer 2023.

Snow disposal continued to take place in the southeast area in 2023. Over the fall and winter 2022-2023, it is estimated that 25,000 m³ to 30,000 m³ of snow were disposed at this location. The southwest corner has again not been used for snow disposal this year. The City implemented a salt management plan starting in 2021-2022 to reduced salt consumption and to have a positive impact on the environment while reducing cost. The City is in the process of securing a new location for snow disposal in order to implement the snow disposal ban at the site. The process for transferring to a new location has been initiated. However, the City expects to need the southeast area of the site for snow disposal until 2025-2026.

4 ENVIRONMENTAL RESULTS

4.1 Landfill Gas Monitoring Results

The potential movement of landfill gas toward on-site buildings has been evaluated at the site in previous programs by monitoring combustible gas at G17-92. Between 2002 and 2015, the combustible gas readings at that location have fluctuated between 0 to 160 ppm. Combustible gas was not detected at G17-92 between 2016 and 2023. The wells that presented combustible gas detections in 2020 to 2023 are



presented in **Table 5**. The highest combustible gas levels continue to be detected at G31-98 located to the east of the waste mound in 2023. Low levels were detected intermittently in wells G15-92, G21-94, G33-98B and G43-11 in 2023. Overall, the levels are similar to levels detected in the past.

Table 5: Detection of Combustible Gas 2020-2023

| Monitoring Well | 2020 Results | 2021 Results | 2022 Results | Spring 2023 | Fall 2023 |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| G15-92 | 0-25% LEL | 25% LEL | 0-13% | No gas detected | 11% |
| G21-94 | 0-5% LEL | No gas detected | No gas detected | No gas detected | No gas detected |
| G31-98B(S) | 0-100% LEL | 77% LEL | 0-100% | 15% LEL | 100% LEL |
| G31-98A(D) | No gas detected | No gas detected | 0-100% | 100% LEL | 100% LEL |
| G32B(S)-98 | 0-25% LEL | No gas detected | No gas detected | No gas detected | No gas detected |
| G33-98B | No gas detected | No gas detected | No gas detected | 3% LEL | No gas detected |
| G43-11 | No gas detected | No gas detected | No gas detected | No gas detected | 3% |

4.2 Groundwater Quality

4.2.1 Leachate Groundwater Plume

The distribution of leachate impacts, based on a multi-parameter evaluation, is shown on **Figure 6** and on **Table 6**.

In 2023, wells P1-91 and P6-91 continue to be the most impacted by leachate with elevated concentrations of several leachate indicators such as chloride, DOC, hardness, TDS, boron, iron, manganese, and sodium. Wells P5B-91 and G27-97 were grouped with the impacted wells in 2023 due to the presence of elevated concentrations of hardness and TDS. Well G28-97 was moved back the moderately impacted wells in 2023 based on an apparent decrease in hardness and TDS. In addition to inorganic parameters, representative impacted wells P1-91 and P6-91 as well as impacted well P5B-91 were analyzed for VOCs in 2023 (see **Appendix H-3**). All VOCs were below detection limits except for benzene which was detected in all three wells, and trace levels of 1,4 dichlorobenzene at P5B-91 and P6-1, and trace levels of chlorobenzene and xylenes at P6-91. All VOCs detected were below the Ontario Drinking Water Quality (ODWQ) guideline except for benzene in August 2023 at all three locations.

Table 6 presents a summary of the average concentrations associated with the most impacted wells (leachate impacted) and associated with the background well (G26-94). The table also presents the wells that are considered to not be significantly impacted by leachate and the wells that are considered moderately impacted, based on the relative concentrations of the leachate indicators to background. For comparison purposes, the average concentrations calculated from the 2022 dataset are presented in brackets alongside the 2023 average concentrations in **Table 6**. The comparison indicates that the average concentrations in 2023 are slightly lower at the impacted wells when compared to the 2022 average. The average concentrations at the background well in 2023 are higher than the 2022 average but within historical range (see trend chart in **Appendix J**). Since 2021, wells G17-92 and G21-94 have been placed



into a separate category based on chloride intermittently elevated above landfill leachate impacted levels and other inconsistencies between the leachate plume and parameter levels at these two locations. In 2023, well G37-01 was also moved into this category for the same reasons. A separate category was created for well G42-10 which shows outlier concentrations for chloride.

This breakdown illustrates that the leachate indicator concentrations decrease along the flow path, on all sides of the waste mound. Monitoring wells showing the most evidence of leachate impact are screened in the upper sand unit (P5B-91, P1-91 and P6-91) and are located immediately downgradient of the waste mound, to the east. Not significantly impacted wells P2-90, P4-90 and G8C-92 and background well G26-92, also screened in the sand unit, are found on the western edge to the waste mound. Wells G17-92, G21-94 and G37-01, screen in the sand or silty clay units, are possibly under the influence of roadside impacts with chloride concentrations seasonally elevated contrary to the conceptual model of decreasing concentrations away and downgradient from the waste mound. The influence of snow disposal activities at G42-10, screen in the top peat unit, is evident again this year with elevated chloride concentrations. Monitoring well G37-01 located in the southwest area of the site and screened in the sand unit was also reported in the past as being under the influence of roadside or snow disposal activity. Based on the interpreted groundwater flow divide and the limits of the buried waste, the area of G37-01 might also be under the influence of the landfill leachate plume. The chloride concentration distribution based on the Spring 2023 results is presented on **Figure 7**.

Spring and fall concentrations for individual parameter vary without a common seasonal trend in 2023. In 2023, the concentrations continue to generally decrease along the flow path in all directions. Phosphorous continues to be elevated above the average impacted leachate level of 00.3 mg/ in 2023 at G20-92 (16.2 mg/L) and at G43-11 (5.13 mg/L). These wells are located along the southern and northeastern boundaries, respectively. Phosphorous shows no consistent pattern along the leachate flow path and the elevated concentrations are interpreted to be indicative of ambient deposition from agricultural activities.

Since 2020, wells G31A/B-98 and G32A/B-98 have been sampled to verify the water quality in the bedrock shale and overburden glacial till units. The results indicate that concentrations in both units were relatively similar and representative of moderate impacts.

Background concentrations at the site have been represented in previous studies by P4-90, P2-90, G11-92/G39-07. In 2023, P4-90 and P2-90 continue to be interpreted as not being significantly impacted by leachate, whereas G39-07 is interpreted to be moderately impacted by leachate. Shallow well G8-92C, located in proximity of P4-90, was sampled in 2023 and interpreted to not be significantly impacted. Well G26-94 located to the northwest of the waste mound presents no historical evidence of impact and continues to be recommended for use as representative of background at the site. It is screened in the sand unit upgradient of the waste mound and water is expected to flow predominantly east from G26-94 through the northern portion of the site, which is moderately impacted by the leachate plume.



Table 6: 2023 Average Groundwater Concentrations and Leachate Impacts

| 2022 Average ⁽¹⁾ Concentrations (mg/L) | Leachate Impacted | Moderately Impacted | Not Significantly Impacted | Background | Possibly under Roadside Influence | Under Snow Pile Influence |
|---|---------------------------------|--|-------------------------------|----------------|---|------------------------------|
| Wells | P1-91, P5B-91, P6-91, G27-97 | G8A/B-92, G12-92, G13- 92, G18-92, G20-92, G29- 97, G31A/B-98, G32A/B- 98, G36-01, G38-03, G39- 07, G40-07, G43-11, G28- 97 | P2-90, P4-90, G8C-92 | G26-94 | G17-92, G21-94, G37-01 | G42-10 |
| Chloride | (220) 182 | (68) 56 | (11.9) 7.5 | (1.5) 1.6 | (505) 192 | 265 |
| Hardness | (921) 890 | (239) 206 | (159.2) 88 | (20.5) 37.4 | (614) 222 | 235 |
| Phosphorous | (1) 0.3 | (6) 1.6 | (2.2) 1.6 | (2.5) 3.0 | (5.7) 2.2 | 0.3 |
| TDS | (1622) 1564 | (518) 496 | (218) 174 | (28.5) 51.5 | (954) 488 | 636 |
| Boron | (3) 1.9 | (0.45) 0.7 | (0.03) 0.02 | (<0.005) 0.009 | (0.142) 0.01 | 0.2 |
| Iron | (21) 22 | (4) 1.7 | (0.008) 0.101 | (0.025) 0.044 | (0.71) 0.4 | 2.2 |
| Manganese | (5) 4 | (1) 0.6 | (0.002) 0.007 | (0.055) 0.104 | (0.11) 0.1 | 0.5 |

(262): Values in bracket are the average concentrations reported in 2022 for comparison purposes.

1. Concentrations below the detection limit are not accounted for in the average calculations.



4.2.2 Trends in Groundwater Quality

Historical groundwater concentrations are presented on **Graphs J-1 to J-9** in **Appendix J** for selected monitoring wells. For the most part, concentrations are relatively stable since at least 2013 indicating a fairly steady leachate plume. Exceptions include and a continued increase (since 2018) for alkalinity and sodium (since 2021) at G37-01. Ammonia concentrations at P6-91 and chloride at G12-92 appear to have stabilized following a reported increase in previous years. Following a period of decrease, the chloride concentrations returned to historical highs at G42-10 in 2023. The concentrations measured in 2022 and 2023 at the newly reinstated G43-11 are slightly higher than when last sampled in 2019 but appear stable.

Monitoring well G43-11 was not available for sampling during the 2020 and 2021 periods. It was sampled again in 2022 and 2023 after having been reinstated in November 2021. COD, alkalinity and TDS has been detected at concentrations elevated above levels found at the nearest upgradient well G39-07 periodically during past year events. In 2023, the concentrations at G43-11 appear more consistent with the landfill leachate migration model.

As reported in previous annual reports, the predictive modelling completed as part of the landfill site expansion (Golder Associated, 2000) predicted that groundwater concentrations of chloride in year 2015 upgradient and downgradient of the on-site pond and at the eastern site boundary would be approximately 150, 35 and 25 mg/L, respectively, assuming a five-fold dilution in the pond. In 2021 and 2022, the concentrations were above the predicted values at all three locations. In 2023, the predicted concentrations were again exceeded upgradient of the pond (G27-97; max of 252 mg/L in May 2023) and downgradient of the pond (G40-07; max of 96.8 mg/L in August 2023). The concentrations in 2023 at the eastern boundary (G42-10) continue to be above the predicted value (max of 300 mg/L in May 2023).

4.2.3 Ontario Drinking Water Quality Guidelines Evaluation

Table 7 presents a summary of the exceedances of the ODWQ guidelines at the boundary wells in comparison with the exceedances detected at the background and leachate wells. The detailed guidelines-concentrations comparison for 2023 is presented in **Appendix H-1**. Exceedances of the ODWQ guidelines this year have been most detected for DOC, hardness, TDS, iron, and manganese. Less frequent exceedances of alkalinity, aluminum, chloride, and sodium were also reported in 2023. The background well (G26-94) presents one exceedance of the manganese ODWQ Guideline this year. The leachate representative well (P6-91) continues to present the most exceedances of ODWQ guideline values (nine inorganic parameters). All other boundary locations present one to seven exceedances of ODWQ guidelines.

Leachate impacted wells P1-91, P5B-91 and P6-91 were analyzed for VOCs in 2023 (see **Appendix H-3**). All VOCs were either below the detection limits or below the ODWQ guideline except for benzene which was detected slightly above the ODWQ at all three wells in 2023.

4.2.4 Domestic Water Wells

The Ministry's Water Well Information System (WWIS) was consulted to obtain water well records within 500 m of the site boundary (Golder Associated, 2015 Annual Monitoring Report). Six wells are reported to be within this area, excluding those wells with a location accuracy of greater than 300 m. Well ID



5605742, 5605743, 5600200 and 5603990 are water supply wells completed in bedrock with at least 18 m casing. Given the presence of at least 7 m of silty clay above the bedrock in each of these well records, the wells were not considered vulnerable to landfill leachate impacts.

Well ID 5602076 is a water supply well completed in the overburden (sand and gravel) and appears to correspond to the well on the former Brazeau property at the southeast corner of the site. Finally, Well ID 7039373 appears to have been drilled at the Brazeau Sanitation property in 2006, but there is no other information in the WWIS on the intended use, depth of construction of the well.

From 2002 to 2005, as part of the City of Clarence-Rockland compensation policy regarding the expansion of the landfill, groundwater sampling was carried out at the domestic well on the property adjacent to the southeastern portion of the landfill site (the Brazeau well). Golder Associates was informed that the Brazeau property was purchased by the City of Clarence-Rockland in early 2006, and the private residence located on the property was demolished in 2008.

The domestic well supplying the scale office was sampled in May 2023 and August 2023 and the groundwater was analyzed for the surveillance parameters. The scale office supply well is a drilled well located behind (to the east) of the household hazardous waste depot dome located next to the scale office. The Ontario Ministry Water Well Records online application was consulted, and no records were found at this location. The closest water well record (Well ID 5605743) is displayed in the area of GS37-01 and indicates a municipal water supply well finished as an open hole from 60 ft to 102 ft in gravel and shale (presumably till and bedrock). It is possible that this well record is that of the scale office. The water well record is reproduced in **Appendix D**. The concentrations from the scale office well in 2023 were in the range of the moderately leachate impacted monitoring wells. The 2023 scale office sample presented exceedances of the ODWS for TDS and sodium.

The 2017 to 2023 annual monitoring results indicate that well G29-97 screened in the sandy unit and located along the western edge of the site is moderately impacted by leachate. The sampling of well G32A-98 since 2020 indicate that leachate has reached the bedrock along the western edge of the waste mound, in proximity of G29-97. A groundwater flow direction towards the west is also possible based on the interpretation of past groundwater elevation. This suggests that some leachate migration is happening within the western boundary of the site.



Table 7: 2023 ODWQ Guideline Exceedances at Selected Wells

| | ODWQ Guidelines (mg/L) | | Leachate (P6-91) | Background (G26-94) | West Boundary (G29-97) | South Boundary (G37-01) | Southeast Boundary (G12-92) | East Boundary (G42-10) | North Boundary (G18-92) | Northeast Boundary (G43-11) |
|-------------------|--|-------|------------------|---------------------|------------------------|-------------------------|-----------------------------|------------------------|-------------------------|-----------------------------|
| Alkalinity | Aesthetic | 500 | X | -- | -- | -- | -- | -- | X | X |
| Chloride | Aesthetic | 250 | X | -- | -- | X | -- | X | -- | -- |
| DOC | Aesthetic | 5 | X | -- | X | -- | -- | X | X | X |
| Hardness | Aesthetic | 100 | X | -- | X | X | X | X | X | X |
| Nitrate | Health | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite | Health | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | Aesthetic | 500 | -- | -- | -- | -- | -- | -- | -- | -- |
| TDS | Aesthetic | 500 | X | -- | X | X | -- | X | X | X |
| Aluminum | Health | 0.1 | X | -- | -- | -- | -- | X | -- | -- |
| Barium | Health | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron | Health | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Cadmium | Health | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | Health | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | Aesthetic | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron | Aesthetic | 0.3 | X | -- | -- | -- | -- | X | X | X |
| Lead | Health | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | Aesthetic | 0.05 | X | X | X | -- | X | X | X | X |
| Mercury | Health | 0.001 | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium | Aesthetic | 200 | X | -- | -- | -- | -- | -- | -- | X |
| Zinc | Aesthetic | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | Health | 0.001 | X | Not analyzed | | | | | | |
| X | <i>Indicates 2023 concentration (s) exceeded guideline</i> | | | | | | | | | |
| -- | <i>Indicates 2023 concentration (s) below guideline</i> | | | | | | | | | |



4.3 Surface Water Quality

The surface water quality near the landfill site was previously subdivided into three groups which are (i) the stream to the west of the site and the ditch which discharges into the stream, (ii) the on-site pond and (iii) the ditch in the southeastern portion of the site, east of the on-site pond. In 2009, the southeastern ditch was realigned, and it stopped being sampled. Sampling of the southeast ditch was reinstated in 2017 at GS20 and GS21 following a 2016 recommendation from the Ministry's technical surface water specialist. In 2018, S3 located along the northern toe of waste mound was reinstated along with GS8 located downstream of the western ditch to evaluate surface water quality north of the site. Since 2023, the upstream segments of the western ditch, before it discharges to the western stream, have been added to the sampling program (GS22 and GS23).

4.3.1 Leachate in Surface Water

The interpreted 2023 distribution of impacts is presented in **Appendix I-1** and the historical surface water results inclusive of 2023 are presented in **Appendix I-2**. Piper diagrams are presented in **Appendix M** to illustrate the different water profiles at the site based. The surface water locations shown on the piper diagram are those analyzed for the full suite of surveillance parameters.

Station GS6 is located on the south site of Lalonde Road, in the upstream section of the western stream. Station GS6 continues to show the lowest annual average chloride concentrations and is considered representative of background conditions (**Figure 7**).

The piper diagrams show a differentiation in water quality that is more pronounced in the fall, likely due to a decrease in flow from spring to fall. Locations GS11 and GS15 present the water quality profile of the pond water impacted by landfill leachate and plot in the lower portion of the diamond diagram. Other locations are located in between the background surface water quality represented by GS6 and the surface water impacted by landfill leachate quality represented by GS11 and GS15. This suggests that sources other than the landfill are affecting the surface water quality in periphery of the site. These stations are shown in blue in the piper diagram and interpreted to be representative of ambient inputs (e.g., agricultural, snow piles, and residential activities).

The on-site pond locations (GS11, GS12 and GS15) continue to show the highest concentrations in 2023 for most parameters. The concentrations in the on-site pond are also significantly higher than background. The pond is regulated under ECA No. 3362-6D7PL4 and acts as natural attenuation facility for stormwater runoff and leachate-impacted groundwater at the site. The concentrations of leachate indicators in the pond are lower than those measured at leachate groundwater well P6-91 indicating an attenuation of contaminants in the pond as designed.

The northern station S3 had sufficient water for sampling once in 2023 and presented the lowest chloride concentrations measured this period. The sector continues to be interpreted as not being affected by leachate impacted surface water.

In 2023, surface water was collected from three locations along the western ditch, GS17, GS22 and GS23. The results indicate that these locations are affected by ambient conditions. Based on the chloride



distribution more elevated at the upstream location GS23 (see **Figure 7**), it is interpreted that the landfill is not impacting the water quality of the western ditch.

In the eastern ditch at GS20 and GS21, chloride concentrations are slightly elevated above background levels throughout the years. These locations also present relatively higher levels of other leachate indicators such as sodium, boron and TDS. The eastern ditch stations were reinstated in 2017 as surveillance stations in order to identify potential leachate input to the Rozon-Seguin Municipal Drain and to determine the need for additional surface water stations up and downstream of the Drain (see **Appendix C**, MOECC, 2016 letter for more details). Consistent with past results, it was observed in 2023 that concentrations were generally higher at the downstream end of the ditch (GS20), indicating that the ditch pickups contaminants as it flows around the southeast snow disposal site. It is inferred that the predominant source of impact in the eastern ditch is associated with the snow disposal activities in the area.

4.3.2 Trends in Surface Water

Historical concentrations are shown on the trend graphs in **Appendix K** for surface water locations GS17 (**Graph K-1**), S1 (**Graph K-2**), GS11 (**Graph K-3**), GS15 (**Graph K-4**) and GS20 (**Graph K-5**) of the western ditch, of the western stream, of the west side of the on-site pond, of the east side of the on-site pond, and of the eastern ditch, respectively. The graphs present the concentrations of selected leachate indicators.

All graphs show a significant drop in 2016 because the reporting units changed from ug/L up to 2015 to mg/L onwards.

Data points for GS17 show a gap because of dry conditions during both the 2019 and 2020 events. Sampling at GS17 resumed in 2021 and 2022 and concentrations appear relatively stable.

Concentrations in the western ditch at S1 are fluctuating along a stable average.

The concentrations at GS11 and GS15 in the pond increased until about 2006 and have since been fluctuating along the same average concentrations, except for decrease in phosphorous concentrations at GS15 between 2015 and 2021.

The concentrations at GS20 appear relatively stable over the 2018-2023 period.

Surface water concentrations fluctuate between sampling events in 2023. No unique seasonal trend is present across the site.



4.3.3 Water Quality Objectives Evaluation

Table 8 presents the parameters that exceeded the Ontario Provincial Water Quality Objectives (PWQO) at selected surface water monitoring locations. The detailed comparison between the guideline values and the 2023 concentrations is presented in **Appendix I-1**. Phosphorous continues to be present above the PWQO at all locations including the background station GS6. The most exceedances continue to be reported at the on-site pond surface water locations which presented exceedances of unionized ammonia, chloride, phosphorous, aluminum, boron, cobalt, iron and/or field pH. The on-site pond at GS11 continues to show the most exceedances with 7 parameters exceeding the PWQO. This station is also the one presenting the highest concentrations of leachate indicators and where staining was observed upstream. Fewer exceedances are found in the western ditch at S1 and GS8. Exceedances are also found off-site at the upstream background location (GS6) and in the upstream western ditch locations (GS17, GS22, GS23) indicating that the surface water entering the western stream is somewhat influence by sources of contamination other than the landfill (e.g., agricultural, roadside activities, septic beds). The exceedances detected in GS20 and GS21 are interpreted to be mostly due to the snow disposal in that area.

In 2016, the guideline values from the Canadian Water Quality Guidelines for freshwater (CWQG FW) and the British Columbia Water Quality Guidelines for freshwater (BC WQG FW) were added to the quality evaluation for nitrate, nitrite, chloride and sulphate as requested by the Ministry's technical reviewer. Surface water location GS11 located in the on-site pond presented exceedances of the CWQG long-term exposure for chloride in 2016 to 2023. Chloride also exceeded the CWQG long-term exposure in the western ditch at GS22. The hardness at GS11 continues in 2022 to exceed the range for which sulphate guideline values are provided under the BC WQG (i.e., >250 mg/L).



Table 8: 2023 Surface Water PWQO Exceedances

| | GS22 & GS23 Western Ditch | GS17 Western ditch | S1 Western Stream | GS8 Western Stream | GS6 Western Upstream | GS11 On-site pond (central) | GS12 On-site pond (central) | GS15 On-site pond (north sector) | GS21 Eastern Ditch Upstream | GS20 Eastern Ditch Downstream |
|----------------------------------|------------------------------|-----------------------|----------------------|-----------------------|-------------------------|--------------------------------|--------------------------------|-------------------------------------|--------------------------------|----------------------------------|
| Unionized ammonia (field) | -- | -- | -- | -- | -- | X | X | X | -- | -- |
| Chloride | X | -- | -- | -- | -- | X | -- | -- | -- | -- |
| Nitrate | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Nitrite | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Phosphorus | X | X | X | X | X | X | X | X | X | X |
| Sulphate | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Aluminum dissolved | X | X | n/a | n/a | X | X | n/a | -- | n/a | X |
| Beryllium | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Boron | -- | -- | -- | -- | -- | X | X | X | -- | -- |
| Cadmium | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Cobalt | -- | -- | n/a | n/a | -- | X | n/a | -- | n/a | -- |
| Copper | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Iron | X | X | X | X | X | X | -- | -- | X | X |
| Lead | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Mercury dissolved | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Molybdenum | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Nickel | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Selenium | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Silver | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Thallium | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Vanadium | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Zinc | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| Phenolics | -- | -- | n/a | n/a | -- | -- | n/a | -- | n/a | -- |
| pH (field) | -- | -- | -- | -- | -- | -- | -- | X | -- | -- |

-- Indicates concentration below the PWQO
 X Indicates concentration exceeds the PWQO
 n/a Not applicable: Not analyzed



5 SITE COMPLIANCE

5.1 Groundwater Compliance

5.1.1 Reasonable Use Criteria

The “reasonable use” approach to protect groundwater quality was developed by the MOE to determine acceptable limits of contaminant discharge from Municipal WDS based on what the “reasonable use” of groundwater on adjacent properties is. The maximum concentration of a particular contaminant in groundwater, which is allowed to leave the WDS property, is termed the Reasonable Use Criteria (RUC). It is calculated based on the Ontario Drinking Water Quality Standards (ODWQS) and a representative background concentration for that particular parameter.

The permitted degradation factor is the amount of degradation between background and ODWQS values that is considered by the MOECC to have only a negligible effect on the use of the water. For drinking water use, as in the case of the WDS, non-health related parameters have a permitted degradation of 50% (0.5) while health related parameters have a permitted degradation of 25% (0.25). The equations used to derive the RUC are presented below.

Health Related:

$$C_{\text{allow}} = P_b + (C_m - P_b) \times 25\%$$

Non-Health Related:

$$C_{\text{allow}} = P_b + (C_m - P_b) \times 50\%$$

where:

C_{allow} = Maximum allowable concentration of parameter as per the RUC guidelines.

C_m = Maximum acceptable concentration (MAC) of parameter as per the ODWS/OG.

P_b = Chosen background value of parameter.

Based on previous study (Golder and Associates 2015 Monitoring Report), the compliance evaluation parameters at the site have been identified as chloride, DOC, TDS, boron, iron, manganese and sodium.

The groundwater technical review completed by the Ministry in 2006 previously flagged potential issues with the use of P4-90 as the background well for RUC calculations and Golder Associates has reported P2-90 and G11-92/G39-97 as being potentially impacted by leachate in previous annual reports. Accordingly, and as presented earlier in this report, background well G26-94 is believed to be a better indicator of background conditions at the site than previously used wells and was used for the 2017 to 2022 RUC calculations. **Graph J-2** shows that concentrations have been relatively stable G26-94, making it suitable for the RUC calculations. As done previously by Golder Associates, the median background concentrations were derived from the entire historical concentrations data set up to 2023. The maximum allowable concentrations derived using the 2023 median values are near equal to the 2022 derived values indicating that conditions are stable at the selected background well. The results are presented in **Table 9**.



Table 9: 2023 RUC Calculations

| Trigger Parameter | Median 2023 (Pb) | Permitted degradation (x) | Maximum Acceptable Concentration (C _M) | Maximum Allowable Concentration 2023 (C _{allow}) | Maximum Allowable Concentration 2022 (C _{allow}) |
|-------------------|------------------|---------------------------|--|--|--|
| Chloride | 2.6 | 0.5 | 250 | 126 | 127 |
| DOC | 2.1 | 0.5 | 5 | 3.5 | 3.5 |
| TDS | 39.5 | 0.5 | 500 | 270 | 268 |
| Boron | 0.009 | 0.25 | 5 | 1.3 | 1.3 |
| Iron | 0.025 | 0.5 | 0.3 | 0.2 | 0.2 |
| Manganese | 0.0065 | 0.5 | 0.05 | 0.03 | 0.03 |
| Sodium | 3.25 | 0.5 | 200 | 102 | 102 |

5.1.2 RUC Compliance

Table 10 presents the summary of the evaluation of the RUC compliance at the boundary wells. The range of concentrations measured in 2023 are presented in **Table 10** for all trigger parameters and boundary wells.

Table 10: 2023 RUC Compliance Evaluation

| Trigger Parameter | RUC 2023 | Background (G26-94) | West Boundary (G29-97) | South Boundary (G37-01) | Southeast Boundary (G12-92) | Southeast Boundary (G17-92) | East Boundary (G42-10) | North Boundary (G18-92) | Northeast Boundary (G43-11) |
|--------------------------|----------|---------------------|------------------------|-------------------------|-----------------------------|-----------------------------|------------------------|-------------------------|-----------------------------|
| Chloride | 126 | 1.0-2.2 | 5.2-9.9 | 268-290 | 43.9-55.4 | 81.1- 296 | 230-300 | 27.4-66.7 | 43.5-47.7 |
| Dissolved Organic Carbon | 3.5 | 2.7-2.8 | 12.5-12.9 | <0.2-1.1 | 1.3-2.8 | 2.1- 4.2 | 12.9-40.4 | 12.1-14.3 | 35.8-41.4 |
| Total Dissolved Solids | 270 | 46-57 | 446-560 | 615-722 | 254- 311 | 340 | 630-641 | 371-757 | 776-783 |
| Boron, dissolved | 1.3 | 0.008-0.009 | 0.071-0.081 | 0.008-0.010 | 0.019-0.036 | 0.158-0.253 | 0.136-0.210 | 0.174-0.445 | 1.04-1.07 |
| Iron, dissolved | 0.2 | 0.033-0.055 | <0.005-0.007 | 0.006-0.007 | 0.005-0.070 | 0.710-1.67 | 0.815-3.66 | 0.130- 1.41 | 0.719-1.20 |
| Manganese, dissolved | 0.03 | 0.020- 0.188 | 3.71-4.83 | 0.039-0.045 | 0.011- 0.052 | 0.051-0.161 | 0.432-0.645 | 0.591-4.39 | 0.287-0.300 |
| Sodium, dissolved | 102 | 2.7-3.3 | 24.4-25.9 | 150-190 | 33.8-46.2 | 33.0-50.1 | 159 | 29.5-78.6 | 278-292 |

47.9: Indicates value exceeds the RUC

The reasonable use concept concentrations were exceeded for two or more trigger parameters in every direction. Manganese exceeded the RUC value once in G26-94 located in the northwest corner and representative of the background conditions.

Conditions along the western and northern boundary appear to be relatively stable.



On the eastern side, a CAZ and attenuation pond are present. Sources other than the landfill (e.g., roadside activities and snow disposal area) appear to be influencing the groundwater quality along the eastern site boundary at G42-10 and G43-11.

Roadside activities appear to be influencing the groundwater quality along the southern boundaries, making it difficult to confirm the efficiency of the cut-off wall or the adequacy of the CAZ.

5.2 Surface Water Compliance

5.2.1 Trigger Parameters and Concentrations

The surface water compliance evaluation parameters at the site have been established previously at the site as unionized ammonia (field), total phosphorus, boron and iron. The trigger concentrations are established based on the 75th percentile concentrations at the non-impacted station GS6 as shown in **Table 11**. The 75th percentile is calculated based on the entire historical dataset using concentrations reported above the detection limit. The selected trigger concentration is the highest of either the 75th percentile or the PWQO. The unionized ammonia concentrations were calculated using the field pH and temperature this year (as per the PWQO methodology) instead of the value reported by the laboratory which resulted in a change in trigger concentration for that parameter in 2023.

Table 11: 2022 Surface Water Trigger Parameters and Concentrations

| Parameter (mg/L) | 75th Percentile (GS6) | PWQO | 2023 Trigger Concentrations |
|----------------------------|-----------------------|------|-----------------------------|
| Ammonia, unionized (Field) | 0.0009 | 0.02 | >0.02 |
| Phosphorus | 0.08 | 0.03 | >0.08 |
| Boron | 0.02 | 0.2 | >0.2 |
| Iron | 1.5 | 0.3 | >1.5 |

5.2.2 Surface Water Compliance

Appendix N shows the surface water compliance evaluation. The evaluation was performed by comparing the measured concentrations at all surface water locations (unless dry) to the trigger concentrations. The data was separated by season to identify any seasonal trend.

There is no significant seasonal difference this year in the number of exceedances.

The trigger concentration for unionized ammonia (field) is exceeded this year at the on-site pond locations. Phosphorous exceedances are found in the eastern and western ditch again this year and once in the on-site pond. Most frequent exceedances of iron are found in the eastern ditch. Boron exceedances continue to consistently exceed the trigger concentration across all seasons at the on-site pond stations only. The background station presents no exceedances throughout the seasons. The distribution of exceedances seems to indicate different sources of impact between the western stream, on-site pond and eastern ditch.

The on-site pond is designed to attenuate leachate before it migrates off-site and as such, exceedances of the trigger concentrations at GS11, GS12 and GS15 are to be expected and no additional mitigation measure is required at this time.



The snow disposal should be discontinued to address the consecutive exceedances of iron in the eastern ditch at GS20.

There is no consecutive exceedance in the western ditch and no mitigation measure is required at this time.



6 CONCLUSIONS

In 2023, the highest leachate impacts continue to be detected on the eastern side of the waste mound where wells present elevated concentrations of several leachate indicators such as chloride, total dissolved solids, boron, iron, hardness, manganese, sodium and dissolved organic carbon. A few VOC parameters were detected at these locations in 2023 including benzene which exceeded the ODWQ guideline. The 2023 results indicate that concentrations are relatively stable across the site.

A decrease in groundwater leachate indicator concentrations is observed on all sides of the waste mound with several wells showing moderate leachate impacts. Upgradient monitoring wells located to the west, northwest and north of the site are generally less impacted. Monitoring wells showing the most evidence of leachate impact are screened in the upper sand unit. Some leachate migration into the deeper silty clay and till units and into the shallow bedrock unit has also occurred.

The groundwater reasonable use concept concentrations were exceeded for two or more trigger parameters in all directions except along the northwest corner, in the area selected as representative of the background groundwater concentrations where only one intermittent exceedance was reported. Sources other than the landfill leachate appear to be influencing the groundwater quality along the southern and eastern boundaries, making it difficult to confirm the efficiency of the cut-off walls and the adequacy of the current attenuation zones in these areas.

In 2023, surface water impacts attributed to the landfill leachate are limited to the on-site attenuation pond. The addition of surface water stations upstream of the western ditch provides further evidence that ambient conditions other than the landfill are responsible for the exceedances reported in the western ditch/stream and that snow disposal is the main contributor to the exceedance reported in the eastern ditch.



7 RECOMMENDATIONS

The following groundwater mitigation measures are recommended:

- For the west boundary, it is recommended to acquire additional land to extend the CAZ within the next 5 year, and also to sample the nearest residential wells to the west of the site at least once for the landfill surveillance parameters. There are currently no sampling results available for these residential wells and testing is recommended to obtain baseline conditions.
- As further mitigation measures to the east, it is recommended to ban snow disposal activities everywhere on site.
- Along the northern boundary, it is recommended to install a new monitoring well along the northern boundary to confirm compliance since the nearest northern boundary well is currently located 140m inward of the northern CAZ limit.
- On the south boundary, the groundwater quality shows evidence of roadside impacts that are difficult to differentiate from landfill leachate impacts. At this time, the cut-off wall appears to be successful in mitigating downgradient waste disposal site related impact and no further mitigation measures are recommended.
- Continue to apply interim and final cover to minimize leachate generation.
- The water from the scale office should not be used as a source of drinking water.

Mitigation measures recommended to address surface water trigger exceedances are:

- Ban snow disposal at the site.
- Continue to apply waste cover as per the regular landfill operation program.

The following changes to the monitoring program are recommended:

- Considering the repeat attempts at securing a staff gauge in the pond, it is recommended to measure the water level with survey equipment during the annual site survey.
- It is estimated, based on the most recent Google Earth image, that there are four residences along the east side of Champlain Road that could be sampled. Based on the leachate distribution at the site, the presence of clay, the main groundwater flow directions, and the distance to the houses, it is not expected that these domestic wells would be impacted by leachate. However, to obtain baseline conditions and because no results are currently available for these wells, it is recommended to sample the nearest residential wells to the west of the site at least once. The sample should be collected before the residential water treatment system, if present and analyzed for the surveillance parameters.
- The monitoring well network has grown over the years to the points that there is redundancy in some areas of the site such that selected wells could be taken off the biannual monitoring program without compromising the interpretation of impacts. Upon review of the historical results, it is recommended to remove the following wells from the sampling program and to adjust the surveillance, routine and RUC evaluation programs accordingly:
 - G17-92 and G21-94. These wells are indicative of roadside impacts. Well G12-92 located further south can continue be used to assess compliance in that area.



- G27-97 and G28-97. These wells are located between the core of the plume and two rows of downgradient monitors and are considered redundant.
- G36-01 and G38-03. These wells are slightly upgradient and similar in construction as other wells available to delineate the impacts on the western boundary and are considered redundant.
- Add GS22 and GS23 to the regular surface water surveillance program to be able to analyse water quality profiles from the different surface water features.
- Review the surface water trigger parameters to ensure that the parameter selected best represent the landfill leachate quality at the site as opposed to ambient residential/agricultural/roadside conditions.

The following maintenance activities are recommended:

- Continue to perform regular maintenance on wells as required.
- Ensure that G8-92 and G31-98 are not obstructed by fallen trees.

8 MONITORING PROGRAM FOR 2024

The monitoring program at the WDS should continue in 2024 in the spring and summer for groundwater and in the spring, summer and fall for surface water. The following elements are recommended for the 2024 monitoring program. Monitoring locations are provided in **Figure 8**.

- Continue the groundwater surveillance monitoring program inclusive of the following wells along the boundaries of the site and the leading edges of the leachate plume:
 - south boundary (G37-01 and P5B-91);
 - southeast boundary (G12-92);
 - east boundary (G42-10);
 - north boundary (G18-92);
 - northeast boundary (G43-11);
 - west boundary (G29-97), (P4-90);
 - background (G26-94);
 - leachate (P6-91 and P1-91);
- Continue testing for VOCs at the surveillance wells P1-91, P5B-91 and P6-91.
- Continue the routine monitoring program inclusive of the following wells, in order to evaluate the leachate migration at the site: G8-92, G38-03, P2-90, G36-01, G20-92, G21-94, G17-92, G31A-98, G28-97, G40-07, G27-97, G13-92, G39-07.
- The following surveillance wells should be used as compliance points and for contingency measures trigger. These wells are located along the leading edges of the plume: G18-92 (or new monitoring well along the northern boundary if available), G26-94, G29-97, G37-01, G12-92, G17-92, G42-10 and G43-11.



- Continue the surveillance monitoring program at surface water stations S2, GS6, GS11, GS15, GS17 and GS20. Add GS22 and GS23 to the regular surface water surveillance program to be able to analyse water quality profiles from the different surface water features. Continue the routine monitoring program at surface water S1, S3, GS8, GS12 and GS21.
- Collect groundwater level measurements from all onsite monitoring wells.
- Collect a representative number of blind duplicates, trip and field blanks.
- Measure combustible gas levels in all headspaces of monitoring wells and in on-site buildings.
- The surface water flow measurements should continue to be reported in L/sec.
- Continue to request that the lowest possible detection limits for surface water analysis.
- Survey pond elevation on one occasion.
- Perform visual site inspection inclusive of:
 - Inspect all wells and provide status report and maintenance recommendations as required,
 - Inspect the site to identify any parts that are experiencing erosion, washouts, leachate seeps or differential settlement.
 - Inspect the surface water drainage system, including the pond control culvert inlet and outlet, to identify any parts that are experiencing erosion, silt build up or blockage.

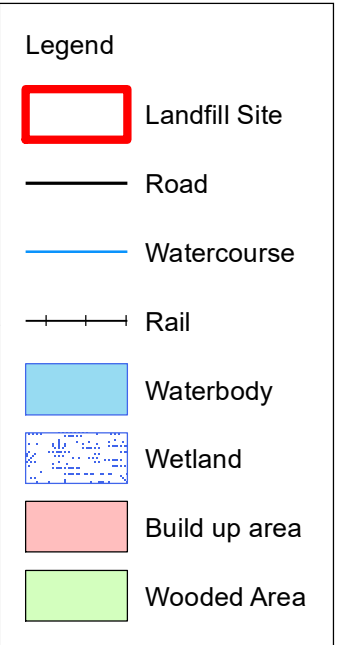
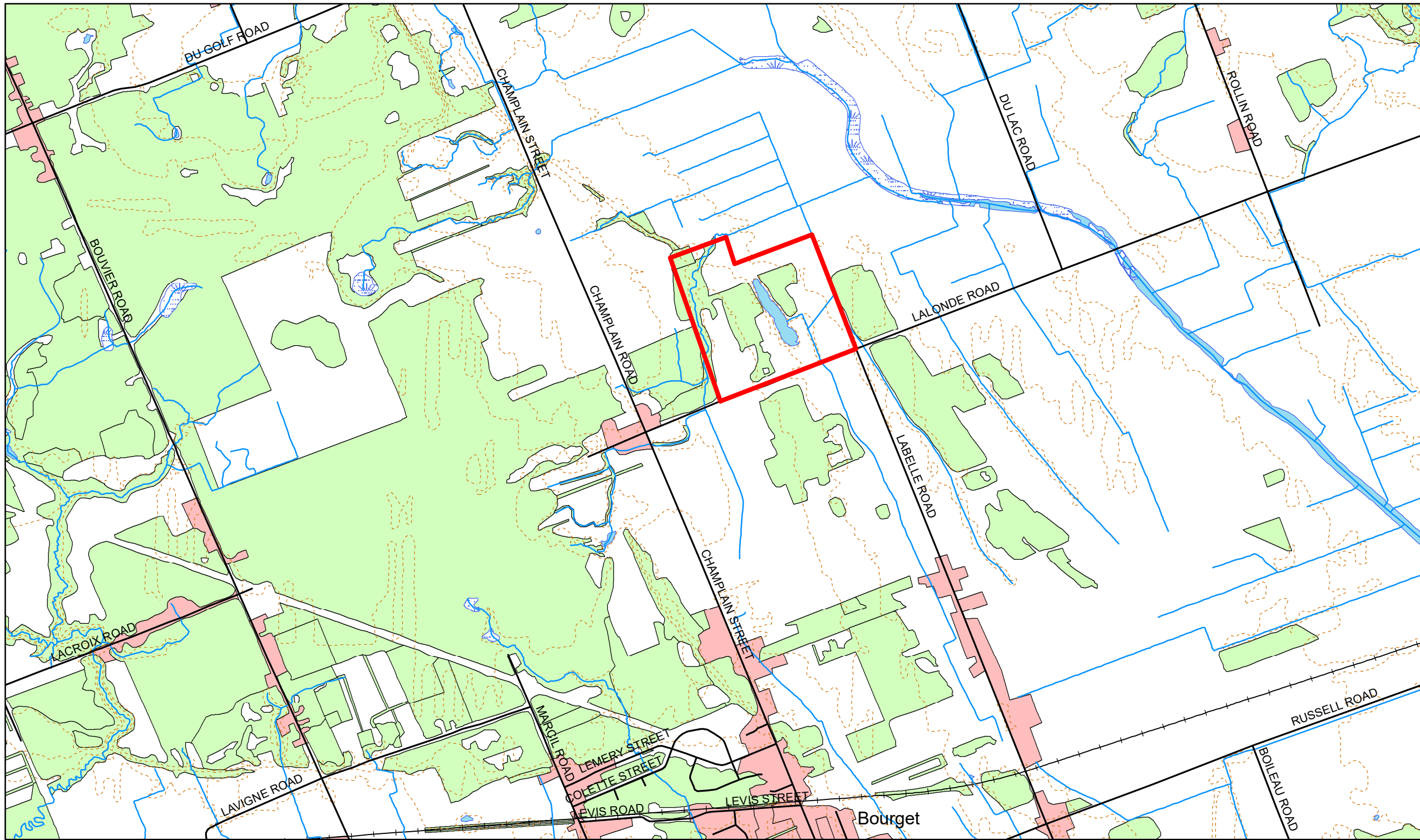


9 LIMITATIONS AND USE OF REPORT

This report was prepared for the exclusive use of the City of Clarence-Rockland. Any use which a third party makes of this report, or and reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Jp2g Consultants Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

This WDS impact report involves a limited sampling of locations to assess the probability of contamination on site. The test data, chemical analyses, and conclusions given herein are the results of analyzing the groundwater encountered during the sampling programs. Based upon the total number of test holes performed, these are considered to be fairly representative of the groundwater conditions within each area tested. It should be noted, however, that any assessment regarding the presence of contamination on the property is based on interpretation of conditions determined at specific locations and depths. Chemical results are limited to those parameters tested.

FIGURES



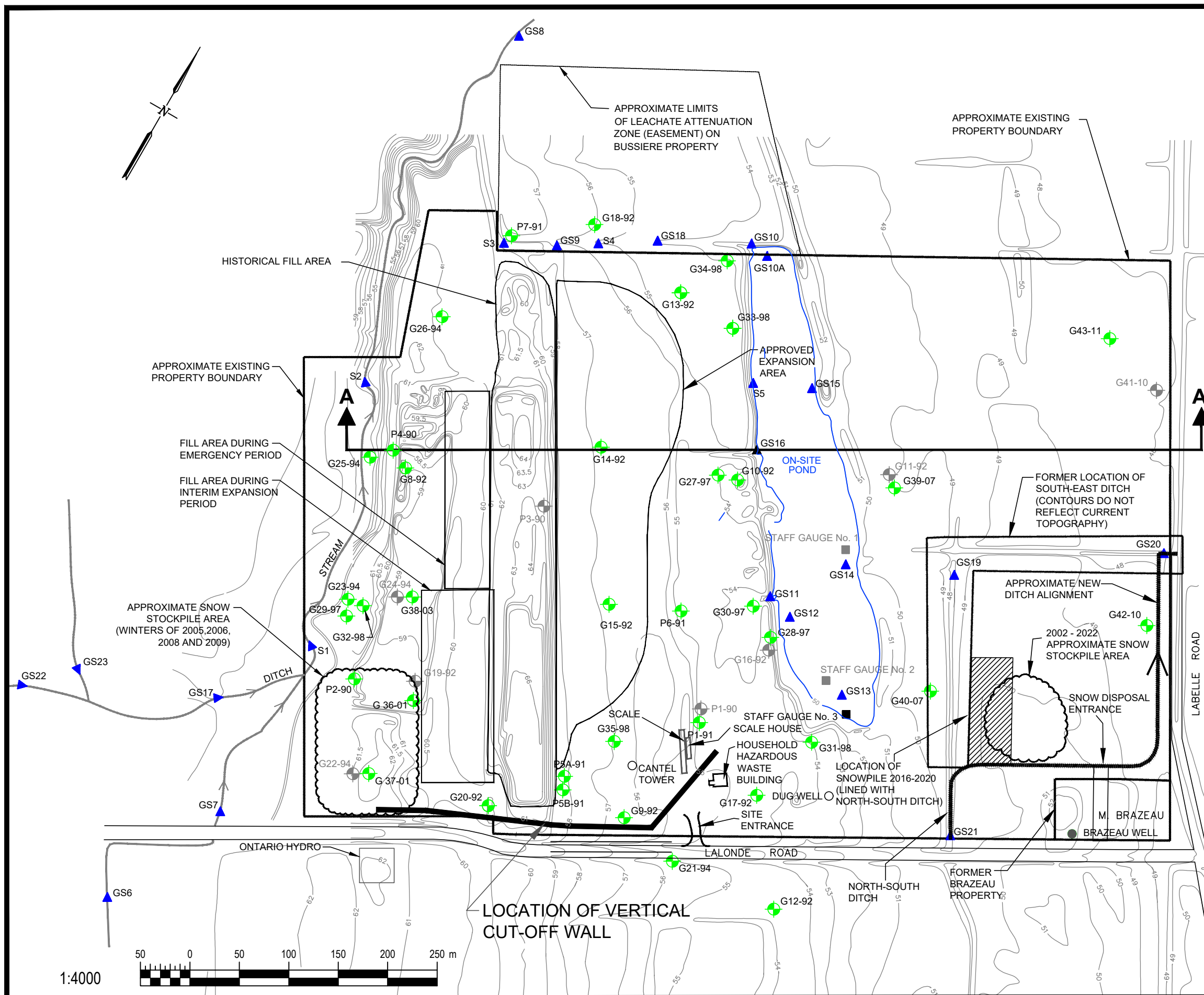
Notes:
 Data from Land Information Ontario, 2018
 Shapefiles created by Jp2g Consultants Inc.
 Landfill site boundary approximate



Clarence-Rockland WDS

Bourget, ON

| | | |
|-------------------------|----------|------------------------------|
| | 1:25,000 | Figure 1- Site Location Plan |
| | | Drawn By: GM |
| Project No. 17-6021G | | Checked by: AB |
| | | Date: March 2024 |



LEGEND

- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- SURFACE WATER MONITORING STATIONS
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22). PROJECT NO. 1520771

CLARENCE AND ROCKLAND LANDFILL MONITORING CLARENCE-ROCKLAND, ONTARIO

~ SITE PLAN

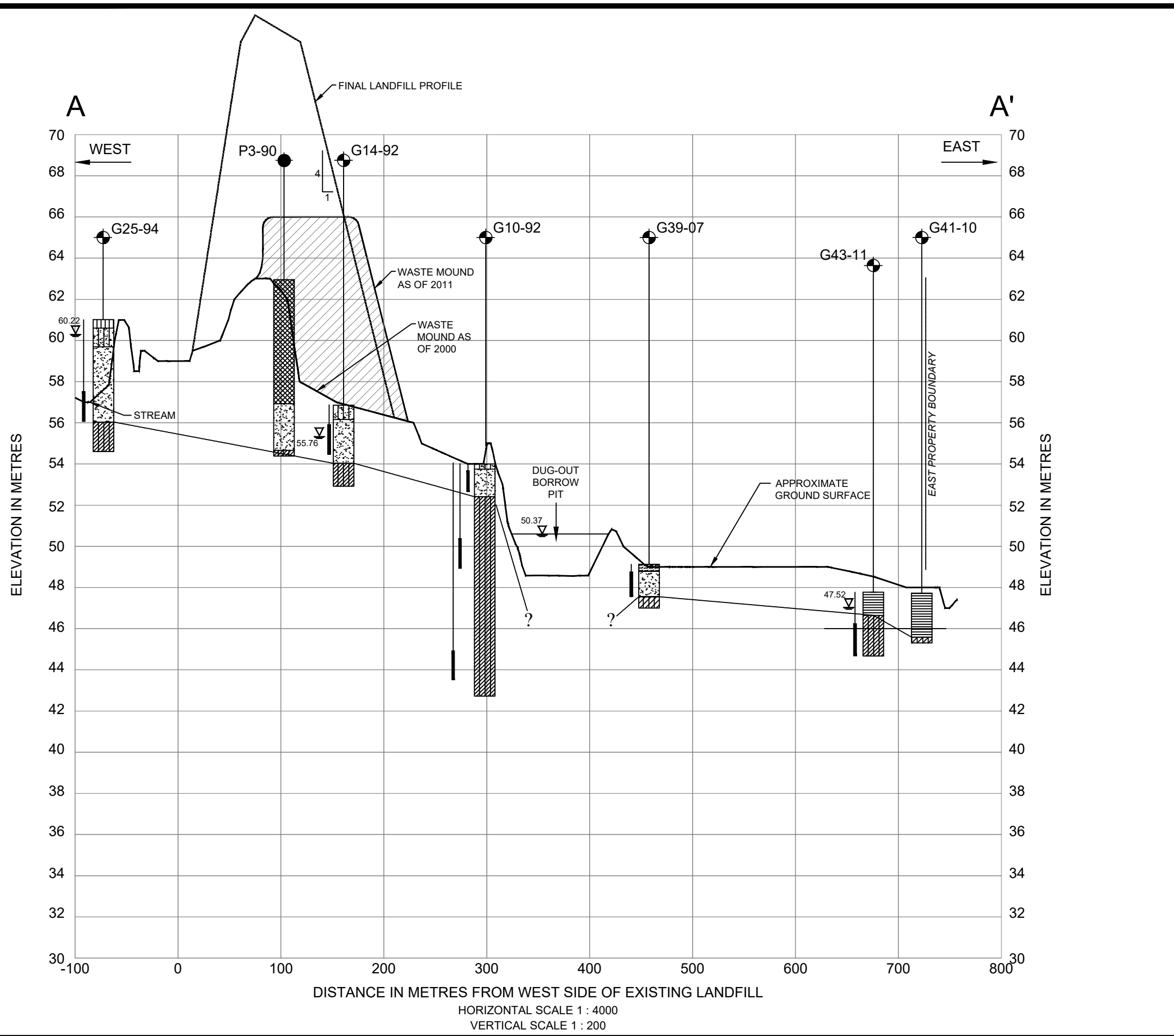
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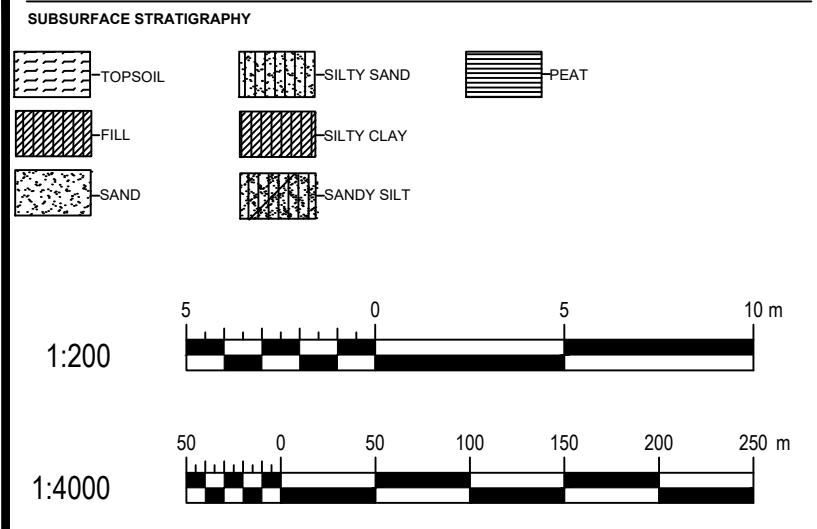
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| DRAFTED: GM | REVISION DATE: 21/02/2024 |
| CHECKED: AB | APPROVED: AB |
| SCALE: 1:4000 | REVISION No.: . |

FIGURE 2

AMR FIGURES.DWG



NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22). PROJECT NO. 1520771
 REFERENCE BASE PLAN SUPPLIED BY McNEELY ENGINEERING CONSULTANTS LTD
 2. STRATIGRAPHIC CONDITIONS ARE INTERPRETED BASED ON INFORMATION AT
 BOREHOLE LOCATIONS. STRATIGRAPHIC CONDITIONS MAY VARY BETWEEN
 BOREHOLES.



CLARENCE AND ROCKLAND LANDFILL MONITORING CLARENCE-ROCKLAND, ONTARIO

~

HYDROSTRATIGRAPHIC CROSS SECTION A-A'

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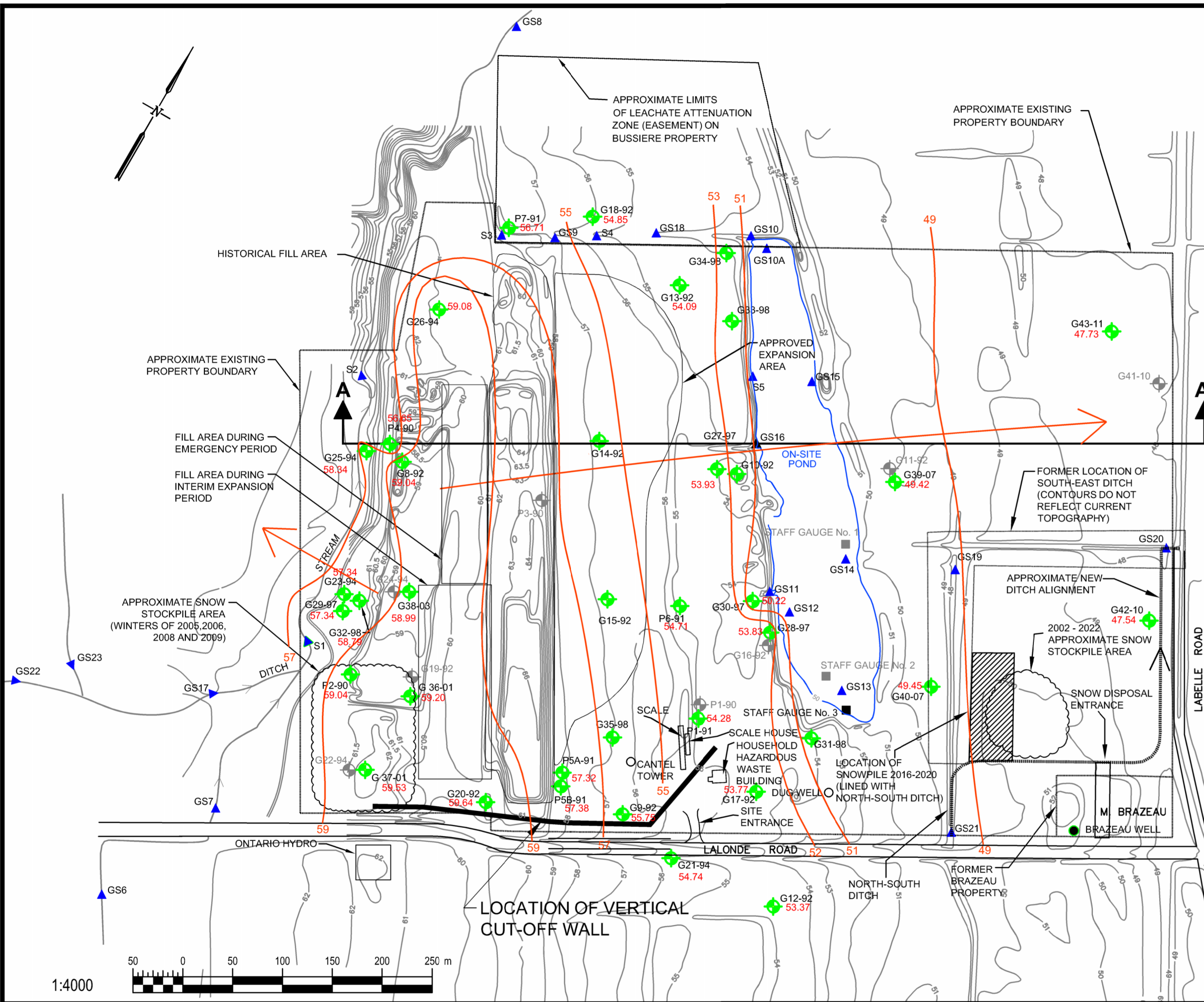
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| | |
|--------------------------|---------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021G |
| DRAFTED: BWS/RM/GM | REVISION DATE: 21/02/2024 |
| CHECKED: AB | APPROVED: AB |
| SCALE: H=1:4000, V=1:200 | REVISION No.: . |

FIGURE 3

CROSS SECTION FIGURE 3.DWG



LEGEND

- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- SURFACE WATER MONITORING STATIONS
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)
- SPRING GROUNDWATER ELEVATION
- DIRECTION OF SPRING 2023 GROUNDWATER FLOW
- SPRING GROUNDWATER CONTOUR

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22), PROJECT NO. 152077 1

CLARENCE AND ROCKLAND LANDFILL MONITORING

CLARENCE-ROCKLAND, ONTARIO

SPRING 2023

GROUNDWATER ELEVATIONS - SANDY & SILTY UNITS

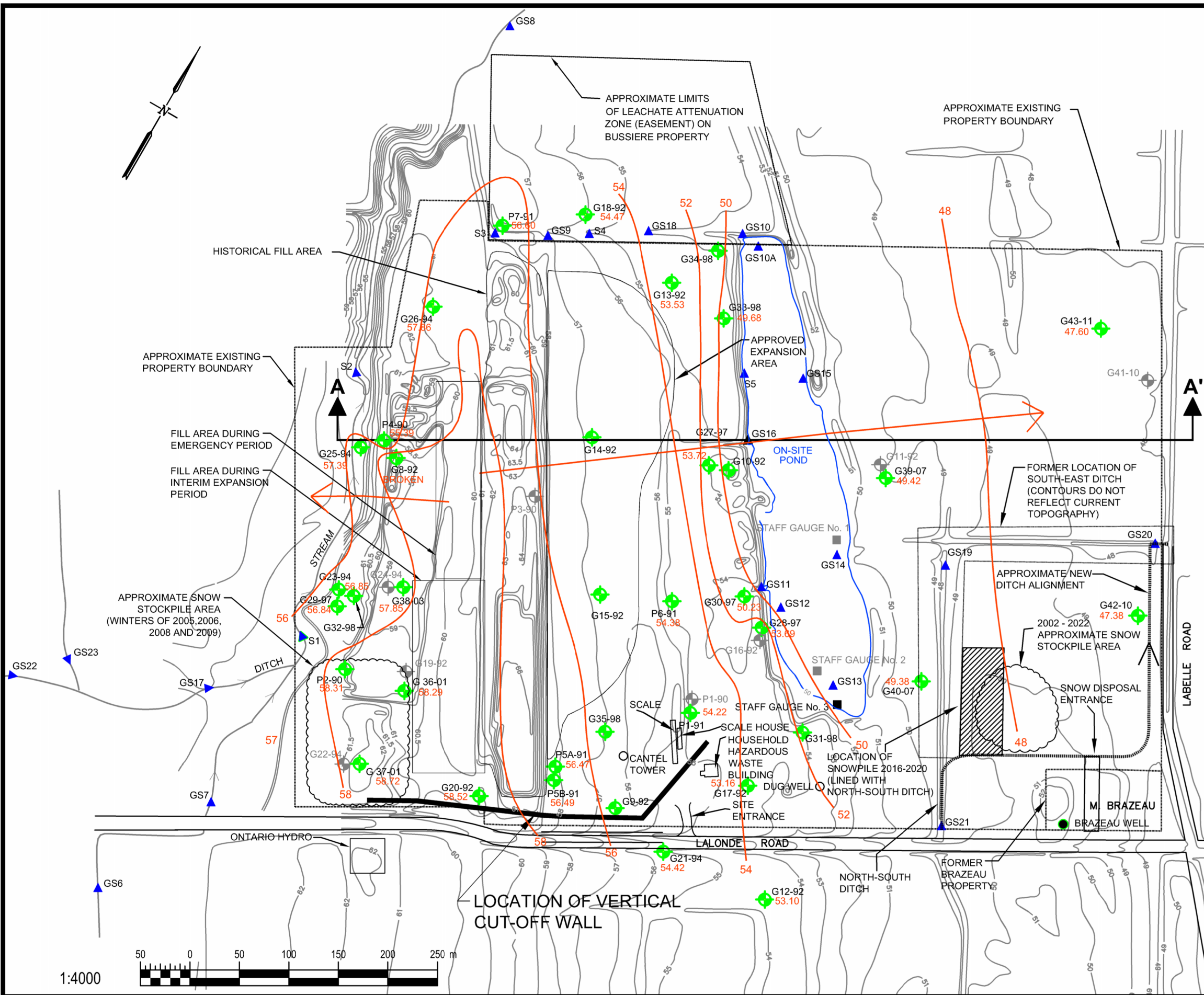
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|--------------------------|---------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021G |
| DRAFTED: BWS/RM/GM/QS | REVISION DATE: 21/02/2024 |
| CHECKED: AB APPROVED: AB | REVISION No.: . |
| SCALE: 1:4000 | |

FIGURE 4



LEGEND

- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- SURFACE WATER MONITORING STATIONS
- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)
- FALL GROUNDWATER ELEVATION
- DIRECTION OF FALL 2023 GROUNDWATER FLOW
- FALL GROUNDWATER CONTOUR

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22), PROJECT NO. 152077 1

CLARENCE AND ROCKLAND LANDFILL MONITORING CLARENCE-ROCKLAND, ONTARIO FALL 2023 GROUNDWATER ELEVATIONS - SANDY & SILTY UNITS

J2 Jp2g Consultants Inc.
 ENGINEERS • PLANNERS • PROJECT MANAGERS

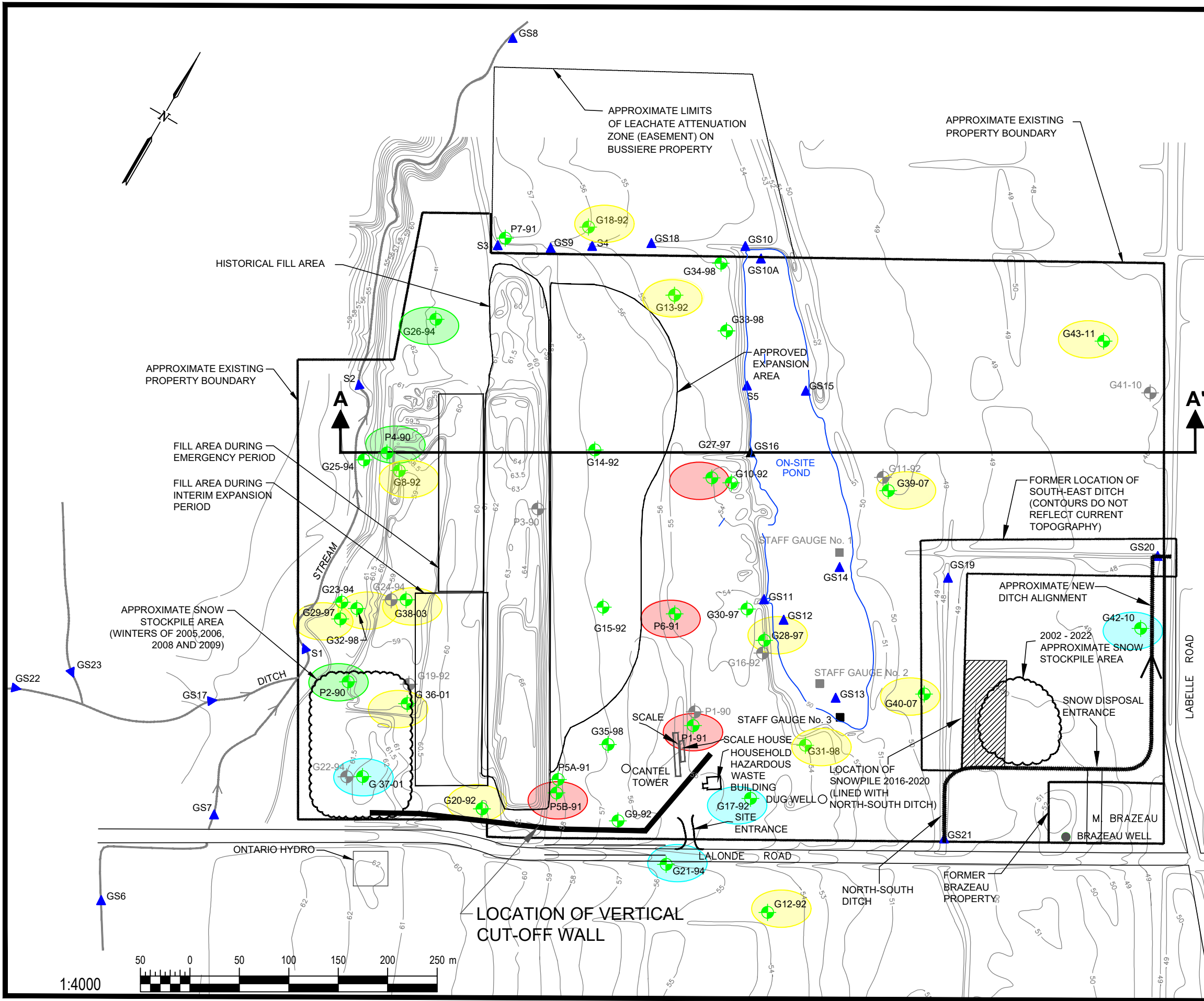
12 INTERNATIONAL DRIVE, PEMBROKE, ON
 Phone: (613)735-2507, Fax: (613)735-4513

1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON
 Phone: (613)828-7800, Fax: (613)828-2600

| | |
|-----------------------------|---------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021G |
| DRAFTED: BWS/RM/GM/QS | REVISION DATE: 21/02/2024 |
| CHECKED: AB APPROVED: AB | REVISION No.: . |
| SCALE: 1:4000 | |

FIGURE 5

AMR FIGURES.DWG



LEGEND

- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- SURFACE WATER MONITORING STATIONS
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)
- ROADSIDE IMPACTED
- BACKGROUND / NOT SIGNIFICANTLY IMPACTED
- MODERATE LEACHATE IMPACT
- LEACHATE IMPACTED

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22). PROJECT NO. 1520771

CLARENCE AND ROCKLAND LANDFILL MONITORING CLARENCE-ROCKLAND, ONTARIO GROUNDWATER LEACHATE INTERPRETATION

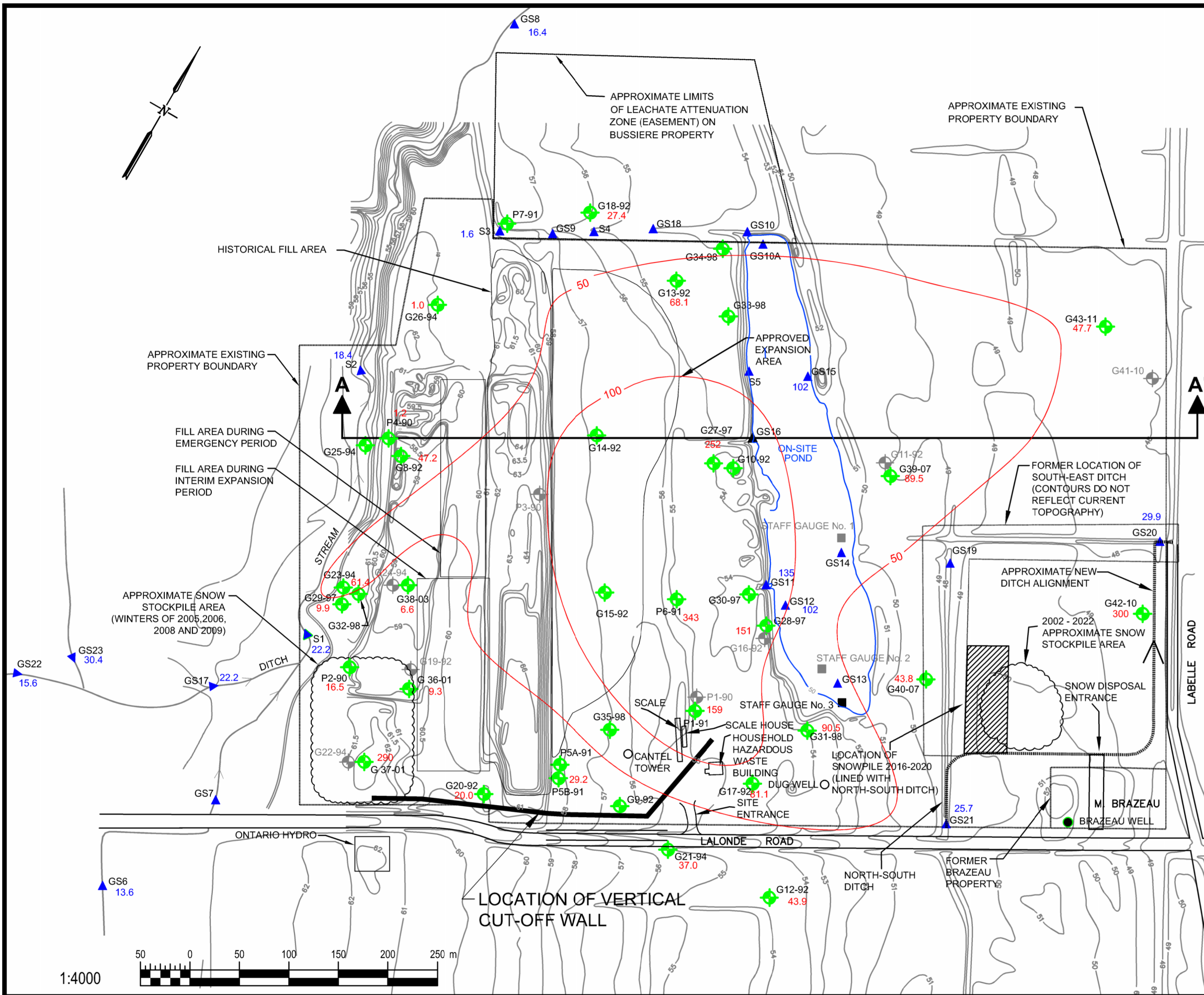
J2g Jp2g Consultants Inc.
 ENGINEERS • PLANNERS • PROJECT MANAGERS

12 INTERNATIONAL DRIVE, PEMBROKE, ON
 Phone: (613)735-2507, Fax: (613)735-4513
 1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON
 Phone: (613)828-7800, Fax: (613)828-2600

| | |
|-----------------------|---------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021G |
| DRAFTED: BWS/RM/GM/QS | REVISION DATE: 21/02/2024 |
| CHECKED: AB | APPROVED: AB |
| SCALE: 1:4000 | REVISION No.: . |

FIGURE 6

AMR FIGURES.DWG



LEGEND

- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- SURFACE WATER MONITORING STATIONS
- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)
- GROUND WATER CHLORIDE CONCENTRATIONS
- SURFACE WATER CHLORIDE CONCENTRATIONS
- GROUND WATER CHLORIDE CONCENTRATION CONTOURS

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22). PROJECT NO. 152077 1

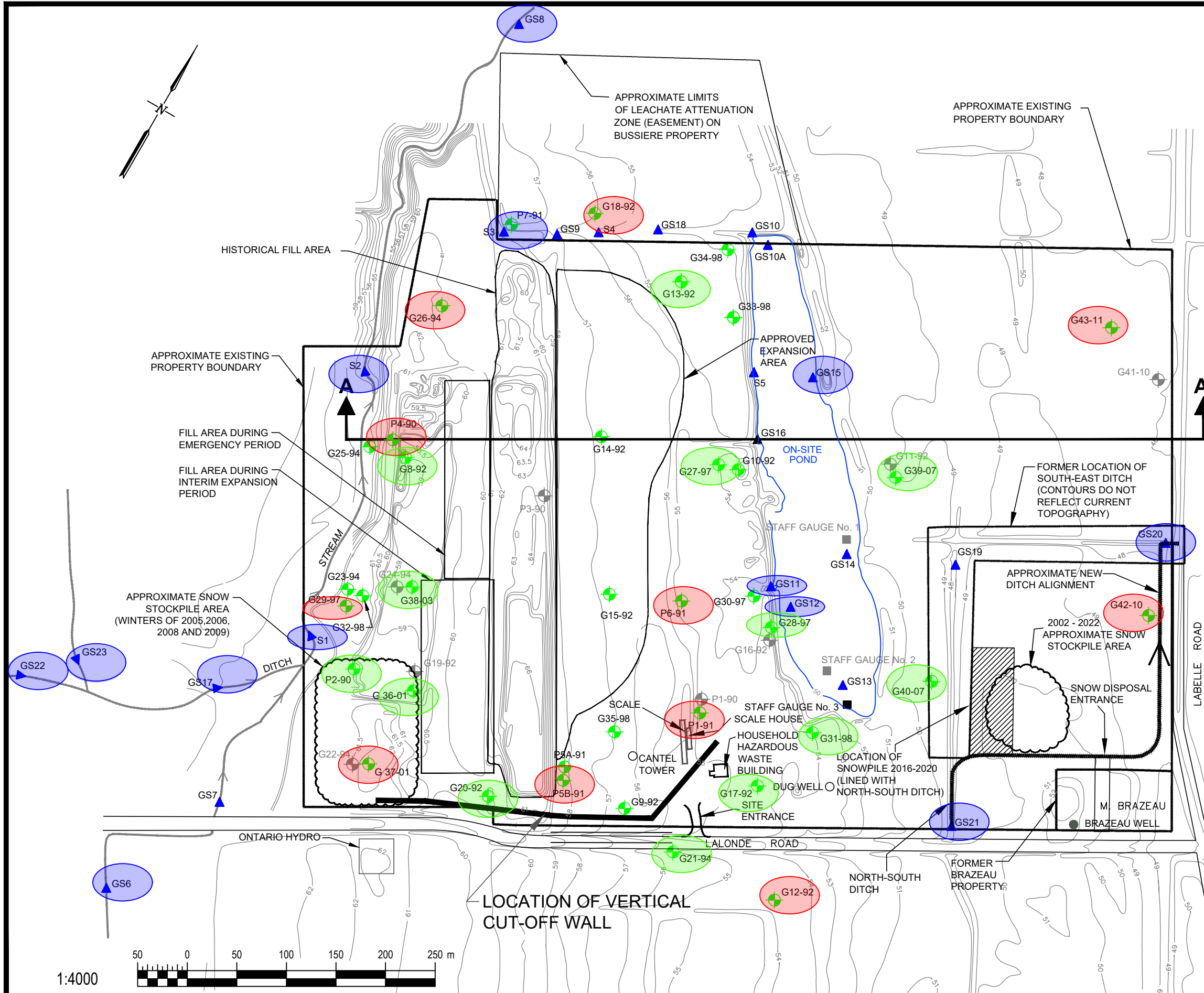
CLARENCE AND ROCKLAND LANDFILL MONITORING CLARENCE-ROCKLAND, ONTARIO CHLORIDE DISTRIBUTION MAY 2023

J2 Jp2g Consultants Inc.
 ENGINEERS • PLANNERS • PROJECT MANAGERS

12 INTERNATIONAL DRIVE, PEMBROKE, ON
 Phone: (613)735-2507, Fax: (613)735-4513
 1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON
 Phone: (613)828-7800, Fax: (613)828-2600

| | |
|-----------------------------|-------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021G |
| DRAFTED: BWS/RM/GM/QS | REVISION DATE: 21/02/24 |
| CHECKED: AB APPROVED: AB | REVISION No.: . |
| SCALE: 1:4000 | |

FIGURE 7



LEGEND

- MONITORING WELL LOCATIONS
- DECOMMISSIONED OR DESTROYED MONITORING WELLS
- SURFACE WATER MONITORING STATIONS
- TOPOGRAPHIC CONTOUR, METRES (GEODETIC DATUM)
- CROSS-SECTION LOCATION IN PLAN (FOR CROSS-SECTION DETAILS REFER TO FIGURE 3 OF THIS REPORT)
- SURVEILLANCE 2022
- ROUTINE 2022
- SURFACE WATER 2022

NOTES
 1. BASE MAP COURTESY OF GOLDER ASSOCIATES (2016-02-22), PROJECT NO. 1520771

CLARENCE AND ROCKLAND LANDFILL MONITORING

CLARENCE-ROCKLAND, ONTARIO

PROPOSED SAMPLING LOCATIONS 2022

J2 Jp2g Consultants Inc.
 ENGINEERS • PLANNERS • PROJECT MANAGERS

12 INTERNATIONAL DRIVE, PEMBROKE, ON
 Phone: (613)735-2507, Fax: (613)735-4513

1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON
 Phone: (613)828-7800, Fax: (613)828-2600

| | |
|--------------------|---------------------------|
| DESIGNED: RM | PROJECT No.: 17-6021F |
| DRAFTED: BWS/RM/GM | REVISION DATE: 27/02/2023 |
| CHECKED: AB | APPROVED: AB |
| SCALE: 1:4000 | REVISION No.: . |

FIGURE 8

APPENDIX A

Monitoring and Screening Checklist

Appendix D-Monitoring and Screening Checklist General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.

Instructions: A complete checklist consists of:

- (a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
- (b) completed contact information for the Competent Environmental Practitioner (CEP)
- (c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:

For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:

- (a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
- (b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..

Definition of Surface water CEP:

A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

| Monitoring Report and Site Information | |
|---|--|
| Waste Disposal Site Name | |
| Location (e.g. street address, lot, concession) | |
| GPS Location (taken within the property boundary at front gate/ front entry) | |
| Municipality | |
| Client and/or Site Owner | |
| Monitoring Period (Year) | |
| This Monitoring Report is being submitted under the following: | |
| Environmental Compliance Approval Number: | |
| Director's Order No.: | |
| Provincial Officer's Order No.: | |
| Other: | |

| | | | |
|--|---|--|--|
| Report Submission Frequency | <input type="radio"/> Annual <input type="radio"/> Other | | |
| The site is: (Operation Status) | <input type="radio"/> Open <input type="radio"/> Inactive <input type="radio"/> Closed | | |
| Does your Site have a Total Approved Capacity? | <input type="radio"/> Yes <input type="radio"/> No | | |
| If yes, please specify Total Approved Capacity | | Units | <input type="text"/> |
| Does your Site have a Maximum Approved Fill Rate? | <input type="radio"/> Yes <input type="radio"/> No | | |
| If yes, please specify Maximum Approved Fill Rate | | Units | <input type="text"/> |
| Total Waste Received within Monitoring Period (Year) | | Units | <input type="text"/> |
| Total Waste Received within Monitoring Period (Year) <i>Methodology</i> | | | |
| Estimated Remaining Capacity | | Units | <input type="text"/> |
| Estimated Remaining Capacity <i>Methodology</i> | | | |
| Estimated Remaining Capacity <i>Date Last Determined</i> | | | |
| Non-Hazardous Approved Waste Types | <input type="checkbox"/> Domestic <input type="checkbox"/> Industrial, Commercial & Institutional (IC&I) <input type="checkbox"/> Source Separated Organics (Green Bin) <input type="checkbox"/> Tires | <input type="checkbox"/> Contaminated Soil <input type="checkbox"/> Wood Waste <input type="checkbox"/> Blue Box Material <input type="checkbox"/> Processed Organics <input type="checkbox"/> Leaf and Yard Waste | <input type="checkbox"/> Food Processing/Preparation Operations Waste <input type="checkbox"/> Hauled Sewage Other: <input type="text"/> |
| Subject Waste Approved Waste Classes: Hazardous & Liquid Industrial <i>(separate waste classes by comma)</i> | | | |
| Year Site Opened <i>(enter the Calendar Year only)</i> | <input type="text"/> | Current ECA Issue Date | <input type="text"/> |
| Is your Site required to submit Financial Assurance? | <input type="radio"/> Yes <input type="radio"/> No | | |
| Describe how your Landfill is designed. | <input type="radio"/> Natural Attenuation only <input type="radio"/> Fully engineered Facility <input type="radio"/> Partially engineered Facility | | |
| Does your Site have an approved Contaminant Attenuation Zone? | <input type="radio"/> Yes <input type="radio"/> No | | |

If closed, specify C of A, control or authorizing document closure date:

Has the nature of the operations at the site changed during this monitoring period?

Yes

No

If yes, provide details:

Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i.e. exceeded the LEL for methane)

Yes

No

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

| | | |
|--|--|--|
| <p>1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:</p> | <p><input type="radio"/> Yes <input type="radio"/> No</p> | |
| <p>2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document (s):</p> | <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable</p> | <p>If no, list exceptions below or attach information.</p> |

| Groundwater Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|-------------------------------|---|------|
| | | |
| | | |
| | | |
| | | |

| | |
|--|---|
| 3) a) Is landfill gas being monitored or controlled at the site? | <input type="radio"/> Yes <input type="radio"/> No |
|--|---|

If yes to 3(a), please answer the next two questions below.

| | |
|--|---|
| b) Have any measurements been taken since the last reporting period that indicate landfill gas is present in the subsurface at levels exceeding criteria established for the site? | <input type="radio"/> Yes <input type="radio"/> No |
|--|---|

| | | |
|--|---|--|
| c) Has the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document: | <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable | If no, list exceptions below or attach additional information. |
|--|---|--|

| Groundwater Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|-------------------------------|---|------|
| | | |
| | | |
| | | |
| | | |

| | | |
|--|---|--|
| 4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization): | <input type="radio"/> Yes <input type="radio"/> No | |
|--|---|--|

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

| | | |
|---|--|--|
| <p>5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> | |
| <p>6) The site meets compliance and assessment criteria.</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> | |
| <p>7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> | |
| <p>1) Is one or more of the following risk reduction practices in place at the site:</p> <p>(a) There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/ treatment; or</p> <p>(b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or</p> <p>(c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):</p> <p><i>i.</i> The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and</p> <p><i>ii.</i> Seasonal and annual water levels and water quality fluctuations are well understood.</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> | <p>Note which practice(s):</p> <p><input type="checkbox"/> (a)</p> <p><input type="checkbox"/> (b)</p> <p><input type="checkbox"/> (c)</p> |
| <p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p> | |

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

No changes to the monitoring program are recommended

The following change(s) to the monitoring program is/are recommended:

No Changes to site design and operation are recommended

The following change(s) to the site design and operation is/are recommended:

| | | | |
|--|-----------|--------------|--|
| Name: | | | |
| Seal: | Add Image | | |
| Signature: | | Date: | |
| CEP Contact Information: | | | |
| Company: | | | |
| Address: | | | |
| Telephone No.: | | Fax No. : | |
| E-mail Address: | | | |
| Co-signers for additional expertise provided: | | | |
| Signature: | | Date: | |
| Signature: | | Date: | |

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

| | |
|--------------------|--|
| Name (s) | |
| Distance(s) | |

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

| | | |
|--|--|---|
| 1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions: | <input type="radio"/> Yes <input type="radio"/> No | |
| 2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable): | <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not applicable (No C of A, authorizing / control document applies) | If no, specify below or provide details in an attachment. |

| Surface Water Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|---------------------------------|--|------|
| | | |
| | | |
| | | |
| | | |

| | |
|---|--|
| <p>3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.</p> | <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable</p> |
|---|--|

| | | |
|--|--|--|
| <p>b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:</p> | <p><input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable</p> | <p>If no, specify below or provide details in an attachment.</p> |
|--|--|--|

| Surface Water Sampling Location | Description/Explanation for change (change in name or location, additions, deletions) | Date |
|---------------------------------|---|------|
| | | |
| | | |
| | | |
| | | |

| | | |
|--|--|--|
| <p>4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):</p> | <p><input type="radio"/> Yes <input type="radio"/> No</p> | |
|--|--|--|

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

| | |
|--|---|
| 5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6): | <input type="radio"/> Yes <input type="radio"/> No |
|--|---|

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

| Parameter | Compliance or Assessment Criteria or Background | Amount by which Compliance or Assessment Criteria or Background Exceeded |
|-------------|---|--|
| e.g. Nickel | e.g. C of A limit, PWQO, background | e.g. X% above PWQO |
| | | |
| | | |
| | | |
| | | |

| | | |
|--|---|--|
| 6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)? | <input type="radio"/> Yes <input type="radio"/> No | |
|--|---|--|

| | | |
|--|---|--|
| <p>7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> | |
| <p>8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Known</p> <p><input type="radio"/> Not Applicable</p> | |
| <p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p> | <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p> | |

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

| | |
|--|--|
| <p><input type="radio"/> No Changes to the monitoring program are recommended</p> <p><input type="radio"/> The following change(s) to the monitoring program is/are recommended:</p> | |
| <p><input type="radio"/> No changes to the site design and operation are recommended</p> <p><input type="radio"/> The following change(s) to the site design and operation is/are recommended:</p> | |

| | |
|---------------------------------|--|
| CEP Signature | |
| Relevant Discipline | |
| Date: | |
| CEP Contact Information: | |
| Company: | |
| Address: | |
| Telephone No.: | |
| Fax No. : | |
| E-mail Address: | |
| | |

2023 Highest Concentrations in Surface Water Stations

| Parameter | Compliance Assessment | Compliance Value (mg/L) | Maximum Detection (mg/L) | % Exceedance ⁽⁴⁾ |
|---------------------------|-----------------------|-------------------------|--------------------------|-----------------------------|
| Unionized ammonia (field) | PWQO | 0.02 | 0.0001 | 100% |
| Phosphorus | PWQO ⁽²⁾ | 0.03 | 0.21 | 600% |
| Aluminum dissolved | PWQO ⁽³⁾ | 0.075 | 0.28 | 273% |
| Boron | PWQO | 0.2 | 2.24 | 1020% |
| Cobalt | PWQO | 0.0009 | 0.0039 | 333% |
| Copper | PWQO | 0.005 | 0.0073 | 46% |
| Iron | PWQO | 0.3 | 5.05 | 1583% |
| Vanadium | PWQO | 0.006 | 0.0064 | 7% |
| Zinc | PWQO | 0.03 | 0.023 | 23% |
| Phenolics | PWQO | 0.001 | 0.006 | 500% |
| pH (field) | PWQO | 8.5 | 8.74 | 3% |
| Nitrite | CWQG | 0.06 | 0.14 | 133% |
| Chloride | CWQG ⁽¹⁾ | 120 | 215 | 79% |

(1) Long-term effect.

(2) Current scientific evidence is insufficient to develop a firm Objective at this time. Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies: To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L; A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value; Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.

(3) At pH 4.5 to 5.5 the Interim PWQO is 15 µg/L based on inorganic monomeric aluminum measure in clay-free samples; At pH > 5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs. At pH > 6.5 to 9.0, the Interim PWQO is 75 µg/L based on total aluminum measured in clay-free samples. If natural background aluminum concentrations in water bodies unaffected by man-made inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level. Note: pH values of < 6.5 and > 8.5 are outside the range considered acceptable by the PWQO for pH. See the Scientific Criteria Document for Development of Provincial Water Quality Objectives and Guidelines - Aluminum for a discussion of analytical procedures.

(4) Percentage error: $| \text{PWQO-Conc} | / \text{PWQO} * 100$

APPENDIX B

Environmental Compliance Approval



Ministry
of the
Environment

Ministère
de
l'Environnement

CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 3362-6D7PL4

The Corporation of the City of Clarence-Rockland
1560 rue Laurier
Rockland, Ontario
K4K 1P7

Site Location: City of Clarence Rockland Waste Disposal Site
Lot 15, Concession 4
City of Clarence-Rockland, United Counties of Prescott and Russell

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

a stormwater and leachate impacted groundwater management facility servicing the Clarence-Rockland Waste Disposal Site, located on Lot 15, Concession 4, United Counties of Prescott and Russell, consisting of:

- one (1) existing dug-out borrow pit (pond) serving as a natural attenuation facility for stormwater runoff and leachate impacted groundwater, which is approximately 450 m long and 50 m to 100 m wide with a maximum depth of 2.5 m and a total surface area of 3.3 ha, receiving stormwater runoff from a 19.3 ha drainage area, providing a total storage capacity of 40,000 m³ at the current discharge elevation of 49.5 m, located at the northeast side of the landfill site footprint, discharging to Cobbs Lake Creek which eventually discharges to Ottawa River;
- upgrades to the east bank of the pond to raise the bank elevation to 51.0 m and the pond outlet elevation to 50.5 m increasing the maximum storage capacity of the pond to 63,175 m³;
- plugging the pond's east bank drainage outlets and infilling of an approximately 80 m long ditch immediately downstream of the pond outlet to promote infiltration of pond contents to groundwater;
- including all associated controls and appurtenances.

all in accordance with Application for Approval of Municipal and Private Sewage Works submitted by The Corporation of the City of Clarence-Rockland dated April 13, 2005, and drawings and design brief prepared by Stantec Consulting Ltd., Ottawa, Ontario.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"Act" means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"Certificate" means this entire certificate of approval document, issued in accordance with Section 53 of the Act, and includes any schedules;

"Director" means any Ministry employee appointed by the Minister pursuant to section 5 of the Act;

"District Manager" means the District Manager of the Kingston District Office of the Ministry;

"Ministry" means the Ontario Ministry of the Environment;

"Owner" means The Corporation of the City of Clarence-Rockland and includes its successors and assignees;

"Previous Works" means those portions of the sewage works previously constructed and approved under a certificate of approval;

"Proposed Works" means the sewage works described in the Owner's application, this Certificate and in the supporting

documentation referred to herein, to the extent approved by this *Certificate*;

"*Regional Director*" means the Regional Director of the Eastern Region of the Ministry;

"*Works*" means the sewage works described in the *Owner's* application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate* and includes both *Previous Works* and *Proposed Works*.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

(1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate*.

(3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate*, the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(4) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

2. EXPIRY OF APPROVAL

The approval issued by this *Certificate* will cease to apply to those parts of the *Works* which have not been constructed within five (5) years of the issuance date of this *Certificate*.

3. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within 30 days of the change occurring:

(a) change of *Owner*;

(b) change of address of the *Owner*;

(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;

(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C 39 shall be included in the notification to the *District Manager*;

(2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

4. SURFACE WATER MONITORING

(1) The *Owner* shall carry out the following surface water monitoring program. Surface water grab samples shall be collected during spring (April/May), Summer (August), and Fall (November) from the designated sampling locations and shall be analyzed for the parameters listed in Table 1.

| Table 1 - Surface Water Monitoring Sampling Locations: GS11, GS12, GS14 | | |
|--|----------------------|----------------------------|
| Parameter | | Field Monitoring Parameter |
| Calcium | Silver | Conductivity (Field) |
| Magnesium | Strontium | pH (Field) |
| Sodium | Sulphur | Temperature |
| Potassium | Thallium | Dissolved Oxygen |
| Aluminum | Titanium | Water Levels*** |
| Barium | Vanadium | |
| Beryllium | Zinc | |
| Boron | Alkalinity | |
| Cadmium | BOD5 | |
| Chromium | TDS | |
| Cobalt | Chloride | |
| Copper | Nitrate | |
| Iron | Nitrite | |
| Lead | Sulphate | |
| Manganese | TKN | |
| Mercury | Ammonia | |
| Molybdenum | COD | |
| Nickel | DOC | |
| Total Phosphorus | Phenols | |
| Silicon | Hardness* | |
| | Un-ionized Ammonia** | |

Note: * Hardness - calculated from laboratory analyses results of calcium and manganese

** Un-ionized Ammonia - calculated from laboratory analyses results for ammonia and field measurements for pH and temperature.

*** Water levels shall be measured at staff gauges installed for the designated sampling points.

(2) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the surface water monitoring activities required by subsection (1)

5. GROUNDWATER MONITORING

(1) The *Owner* shall undertake groundwater monitoring in accordance with Conditions 46 (a) and 46 (c) of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time.

(2) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the groundwater monitoring activities required by subsection (1)

6. OPERATIONS AND MAINTENANCE

(1) The *Owner* shall undertake an inspection of the condition of the stormwater management facility, at least once a year, and undertake any necessary cleaning and maintenance to prevent the excessive build-up of sediment and/or decaying vegetation.

(2) The *Owner* shall maintain a logbook to record the results of the stormwater management facility inspections and any cleaning and maintenance operations undertaken and shall keep the logbook at the site or operational office of the *Owner* for inspection by the Ministry.

(3) The *Owner* shall compare surface water monitoring results obtained from sampling point **GS12** under Condition 4 (1) with the concentrations of the trigger parameters listed in Table 2 to identify any potential leachate impact to surface water discharged from the site to the receiving stream.

| Table 2 - Surface Water Trigger Parameters | |
|---|-----------------------------|
| Parameter | Concentration (mg/L) |
| Ammonia (un-ionized) | 0.02 |
| Boron | 0.20 |
| Iron | 0.30 |
| Total Phosphorus | 0.05 |

(4) In the event that a monitoring result for any of the parameters listed in Table 2 exceeds its corresponding trigger concentration, the *Owner* shall immediately initiate the implementation of Condition 53 of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time.

(5) Surface water trigger parameters and concentrations outlined in Table 2 under subsection (3) shall be modified from time to time **only** after receiving a written concurrence from the *District Manager* or an approval from the Director designated for the purpose of Section 37 of the *Environmental Protection Act*.

7. REPORTING

(1) The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.

(2) The *Owner* shall prepare, and submit to the *District Manager*, an annual performance report as a separate section of the annual report required under Condition 63 of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

- (a) a summary and interpretation of all surface water monitoring data and comparison of results to the trigger concentrations outlined in Table 2 under Condition 6(3), including an overview of the success and adequacy of the

CONTENT COPY OF ORIGINAL

Works.

- (b) a description of any operating problems encountered and corrective actions taken;
- (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;
- (d) any other information the *District Manager* requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the owners their responsibility to notify any person they authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate*.
2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the *Works* in compliance with it.
4. Condition 4 and 5 are included to enable the *Owner* to evaluate and demonstrate the performance of the *Works*, on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives specified in the *Certificate* and that the *Works* does not cause any impairment to the receiving watercourse.
5. Condition 6 is included to require that the *Works* be properly operated, maintained, and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
6. Condition 7 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

CONTENT COPY OF ORIGINAL

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 24th day of June, 2005

Mohamed Dhalla, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

SH/
c: District Manager, MOE Cornwall
Gerry Lalonde, Stantec Consulting Limited



Content Copy Of Original

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A471203

Notice No. 3

Issue Date: December 20, 2018

The Corporation of the City of Clarence-Rockland
1560 Laurier St P.O. Box 909
Clarence-Rockland, Ontario
K4K 1P7

Site Location: City of Bourget Landfill
2335 Lalonde Rd
Clarence-Rockland City, United Counties of Prescott and Russell
K0A 2E0

You are hereby notified that I have amended Approval No. A471203 issued on October 21, 2009 and amended September 9, 2015 and August 19, 2016 for the use and operation of a 12 hectare landfilling area within a total site area of 50 hectares , , as follows:

The proposed amendment is approved to reflect the revised configuration of site facilities as described in Item 33 of Schedule "A".

The following item is added to Schedule "A" of this Approval:

33. Report titled "City of Clarence-Rockland Amendment to Landfill Environmental Compliance Approval A471203 , Landfill Site Entrance and Facilities Reconfiguration" and supporting documentation. Prepared by Stantec Consulting Ltd, August 24, 2018.

The reason for this amendment to the Approval is as follows:

The reason for this amendment is to reflect the updated site entrance and facilities reconfiguration.

This Notice shall constitute part of the approval issued under Approval No. A471203 dated October 21, 2009

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the

- environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1
of the Environmental Protection Act
Ministry of the Environment, Conservation and
Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 20th day of December,
2018

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part
II.1 of the *Environmental
Protection Act*

CF/
c: Area Manager, MECP Cornwall

c: District Manager, MECP Ottawa

Phillipe Cormier, The Corporation of the City of Clarence-Rockland



Ministry of the Environment and
Climate Change
Ministère de l'Environnement et
de l'Action en matière de
changement climatique

**AMENDMENT TO ENVIRONMENTAL COMPLIANCE
APPROVAL**

NUMBER A471203

Notice No. 2

Issue Date: August 19, 2016

The Corporation of the City of Clarence-Rockland
1560 Laurier St
Clarence-Rockland, Ontario
K4K 1P7

Location: iteCity of Clarence-Rockland Waste Disposal Site
Lot 15, Concession 4
Clarence-Rockland City, United Counties of Prescott
and Russell

You are hereby notified that I have amended Approval No. A471203 issued on October 21, 2009 and amended on 9th day of September, 2015 for the use and operation of a 12 hectare landfilling area within a total site area of 50 hectares, as follows:

Amendment to the Existing Approval of Sewage Works No. 3362-6D7PL4

2(17) The *Owner* shall submit an Application for amendment of the ECA No. 3362-6D7PL4, in order to amend this ECA and include the stormwater management works on the *Site* required due to the currently proposed *HHW* depot, new site entrance, weigh scales and other related works. This Application shall be submitted to the *Ministry* by December 31, 2016, as required under Section 20.2 of the EPA.

The reason for this amendment to the Approval is to extend the date to submit the application to amend the ECA No. 3362-6D7PL4.

This Notice shall constitute part of the approval issued under Approval No. A471203 dated October 21, 2009 as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection
Act
Ministry of the Environment and Climate
Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the

Environmental Protection Act.

DATED AT TORONTO this 19th day of August, 2016

Dale Gable, P.Eng.

Director

appointed for the purposes of Part

II.1 of the *Environmental*

Protection Act

RM/

c: Area Manager, MOECC Cornwall

c: District Manager, MOECC Ottawa

Jocelyn Chabot, The Corporation of the City of Clarence-Rockland

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A471203

Notice No. 1

Issue Date: September 9, 2015

The Corporation of the City of Clarence-Rockland
1560 Laurier Street
Clarence-Rockland, Ontario
K4K 1P7

Site Location: City of Clarence-Rockland Waste Disposal Site
Lot 15, Concession 4
City of Clarence-Rockland, United Counties of Prescott and Russell

You are hereby notified that I have amended Approval No. A471203 issued on October 21, 2009 for the use and operation of a 12 hectare landfilling area within a total site area of 50 hectares , as follows:

I. The following definitions are hereby added to the Environmental Compliance Approval No. A471203;

"Certificate " or "Approval " or "Environmental Compliance Approval " means this entire provisional Approval document, issued in accordance with section 39 of the EPA, and includes any schedules to it, the application and the supporting documentation listed in Schedule "A".

II. Condition 2(1) of the Environmental Compliance Approval No. A471203 is hereby amended by revising the Site Configuration such that the revised Condition 2(1) reads as follows;

Operation

2(1) The Site shall be operated and maintained at all times including management and disposal of all waste in accordance with the EPA, Regulation 347, the conditions of this Approval, and the Report listed as item No. 26 of the Schedule A (including the Site Entrance and Facilities Reconfiguration as shown on the Plan listed as item No. 27). At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

III. The following Condition 2(17) is added to the Environmental Compliance Approval No. A471203;

Amendment to the Existing Approval of Sewage Works No. 3362-6D7PL4

2(17) The *Owner* shall submit an Application for amendment of the ECA No. 3362-6D7PL4, in order to amend this ECA and include the stormwater management works on the *Site* required due to the currently proposed *HHW* depot, new site entrance, weigh scales and other related works. This Application shall be submitted to the Ministry by June 30, 2016, as required under Section 20.2 of the EPA.

IV. Condition 8(1) of the *Environmental Compliance Approval* No. A471203 is hereby amended by including the gas monitoring for Weigh Scale House, such that the revised Condition 8(1) reads as follows;

Landfill Gas

8(1) Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the *Site* and outside of the Weigh Scale House (as identified in the Figure 2 revised on August 28, 2015, and listed as item No. 32 of the Schedule A), especially enclosed structures which at times are occupied by people. If required, the *Owner* shall ensure that any buildings or structures at the *Site* contain adequate preventive measures to relieve any possible landfill gas accumulation.

V. Conditions 11(1) and 11(2) of the *Environmental Compliance Approval* No. A471203 are hereby amended such that the revised Conditions 11(1) and 11(2) read as follows;

Household Hazardous Waste (HHW) Depot

11(1) The *HHW* depot shall only accept household hazardous wastes and it shall be operated in accordance with the application for a Waste Disposal Site (Transfer) submitted on June 1, 1995 and supporting information, and as modified in the Design Operation and Maintenance Report, dated August 2000, and as amended by Report listed as item No. 26 of the Schedule A.

11(2) No household hazardous waste will be stored in *HHW* Depot for more than 90 days on the *Site*.

VI. The following Items are hereby added to Schedule "A" and form part of the *Environmental Compliance Approval* No. A471203;

25. Application for Amendment to the ECA #A471203 for Clarence-Rockland Landfill Entrance and Facilities Reconfiguration, dated June 1, 2015 and received on June 15, 2015, including supporting documentation.

26. Report entitled "City of Clarence-Rockland Amendment to Landfill *Environmental Compliance Approval*, Landfill Site Entrance and Facilities Reconfiguration, prepared by Stantec Consulting Ltd", dated March 6, 2015.

27. Figure 4 included in the Report listed as item No. 26, and entitled as "Site Layout - Landfill Site Entrance And Facilities Reconfiguration", signed/stamped by Gerry Lalonde Stantec Consulting Inc. on January 21, 2015.

28. Email from Gerry Lalonde Stantec Consulting Inc., dated August 12, 2015, addressed to Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information regarding the amendment of the Sewage Works ECA No. 3362-6D7PL4.
29. Email from Gerry Lalonde Stantec Consulting Inc., dated August 14, 2015, addressed to Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed in item No. 25 of Schedule A.
30. Email from Denis Longpré, Manager of Environment and Water, Infrastructure and Engineering, City of Clarence-Rockland City, dated August 28, 2015, addressed to Khalid Hussain, Ministry of the Environment and Climate Change, providing additional information supplementing the Report listed in item No. 26 of Schedule A.
31. Email from Gerry Lalonde Stantec Consulting Inc., dated August 28, 2015, addressed to Khalid Hussain, Ministry of the Environment and Climate Change, regarding landfill gas monitoring adjacent to the Weigh Scale House, and regarding the approval application for Stormwater management works.
32. Revised Figure 2 included in the Email listed as item No. 31, and entitled as "Weigh Scale House Floor Plan - Landfill Site Entrance And Facilities Reconfiguration", submitted by Gerry Lalonde Stantec Consulting Inc. on August 28, 2015.

The reason(s) for this amendment to the Approval is (are) as follows:

1. The reason for amending Condition 2(1), 11(1) and 11(2) of the *Approval* is as follows: all in accordance with the application for approval dated June 1, 2015 and received on June 15, 2015, and including supporting documentation.
2. The reasons for Condition 8(1) is to ensure that off site migration of landfill gas is monitored and all buildings at the *Site* are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the *Site*
3. The reason for adding Condition No. 2(17) is to ensure that the Approval for the site stormwater management works is updated to include the stormwater from the proposed new infrastructure and that the site sewage works are constructed and operated in accordance with the Approval from the Ministry as required under the Environmental Protection Act.

This Notice shall constitute part of the approval issued under Approval No. A471203 dated October 21, 2009.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in

- respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

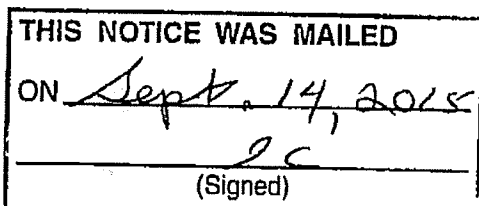
AND

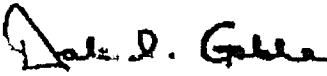
The Director appointed for the purposes of Part II.1 of
the Environmental Protection Act
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 9th day of September, 2015




Dale Gable, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

KH/

- c: Area Manager, MOECC Cornwall Area Office.
- c: District Manager, MOECC Ottawa District.
Gerry Lalonde, P.Eng., Stantec Consulting Ltd. ✓



REÇU

3^U OCT. 2009

Ministry of the Environment
Ministère de l'Environnement

~~CITÉ CLARENCE-ROCKLAND~~

**AMENDED PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE**

NUMBER A471203

Issue Date: October 21, 2009

The Corporation of the City of Clarence Rockland
1560 Laurier St Rockland, Ontario
The City of Clarence Rockland, Ontario
K4K 1P7

Site Location: Lot 15, Concession 4
The City of Clarence Rockland, United Counties of Prescott and Russell

You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:

the use and operation of a 12 hectare landfilling area within a total site area of 50 hectares, as follows:

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"*Certificate*" means this entire provisional Certificate of Approval document, issued in accordance with section 39 of the *EPA*, and includes any schedules to it, the application and the supporting documentation listed in Schedule "A";

"*Director*" means any *Ministry* employee appointed in writing by the Minister pursuant to section 5 of the *EPA* as a Director for the purposes of Part V of the *EPA*;

"*District Manager*" means the District Manager of the local district office of the *Ministry* in which the *Site* is geographically located;

"*EPA*" means *Environmental Protection Act*, R.S.O. 1990, c. E. 19, as amended;

"*HHW*" means household hazardous waste;

"*Ministry*" means the Ontario Ministry of the Environment;

"*NMA*" means *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended from time to time;

"*Operator*" means any person, other than the Owner's employees, authorized by the *Owner* as having the charge, management or control of any aspect of the *Site* and includes its successors or assigns;

"*Owner*" means any person that is responsible for the establishment or operation of the *Site* being approved by this *Certificate*, and includes the Corporation of the City of Clarence Rockland and assigns;

"*OWRA* " means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended;

"*PA* " means the *Pesticides Act* , R.S.O. 1990, c. P-11, as amended from time to time;

"*Provincial Officer*" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of *PA* or Section 4 of *NMA* or Section 8 of *SDWA* .

"*Regional Director* " means the Regional Director of the local Regional Office of the *Ministry* in which the *Site* is located.

"*Regulation 347* " or "*Reg. 347* " means Regulation 347, R.R.O. 1990, made under the *EPA*, as amended from time to time;

"*SDWA*" means *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, as amended;

"*Site* " means the entire waste disposal site, including the buffer lands, contaminant attenuation zone, hazardous waste depot/transfer station and associated buildings and facilities at Lot 15, Concession 4, The City of Clarence Rockland, United Counties of Prescott and Russell; and

"*Trained personnel*" means knowledgeable in the following through instruction and/or practice:

- a. relevant waste management legislation, regulations and guidelines;
- b. major environmental concerns pertaining to the waste to be handled;
- c. occupational health and safety concerns pertaining to the processes and wastes to be handled;
- d. management procedures including the use and operation of equipment for the processes and wastes to be handled;
- e. emergency response procedures;
- f. specific written procedures for the control of nuisance conditions;
- g. specific written procedures for refusal of unacceptable waste loads; and
- h. the requirements of this *Certificate*.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

Compliance

- (1) The *Owner* and *Operator* shall ensure compliance with all the conditions of this

Certificate and shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

- (2) Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *Certificate* .

In Accordance

- (3) Except as otherwise provided by this *Certificate*, the *Site* shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule "A".

Interpretation

- (4) Where there is a conflict between a provision of any documents listed in Schedule "A" in this *Certificate*, and the conditions of this *Certificate*, the conditions in this *Certificate* shall take precedence.
- (5) Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.
- (6) Where there is a conflict between any two documents listed in Schedule "A", the document bearing the most recent date shall take precedence.
- (7) The conditions of this *Certificate* are severable. If any condition of this *Certificate*, or the application of any condition of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

Other Legal Obligations

- (8) The issuance of, and compliance with, this *Certificate* does not:
 - (a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
 - (b) limit in any way the authority of the *Ministry* to require certain steps be taken or to require the *Owner* and *Operator* to furnish any further information related to compliance with this *Certificate* .

Adverse Effect

- (9) The *Owner* and *Operator* shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the *Site*,

including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

- (10) Despite an *Owner, Operator* or any other person fulfilling any obligations imposed by this *Certificate, the Owner, Operator or* any other person remains responsible for any contravention of any other condition of this *Certificate* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

Change of Ownership

- (11) The *Owner* shall notify the *Director*, in writing, and forward a copy of the notification to the *District Manager*, within 30 days of the occurrence of any changes in the following information:
 - (a) the ownership of the *Site*;
 - (b) the *Operator* of the *Site*;
 - (c) the address of the *Owner or Operator*; and
 - (d) the partners, where the *Owner or Operator* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act*, R. S. O. 1990, c. B.17, shall be included in the notification.
- (12) No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out.
- (13) In the event of any change in *Ownership* of the works, other than change to a successor *Owner*, the *Owner* shall notify the successor of and provide the successor with a copy of this *Certificate*, and the *Owner* shall provide a copy of the notification to the *District Manager* and the *Director*.

Certificate of Requirement/Registration on Title

- (14) The *Owner* shall:
 - (a) Within 60 days of the date of the issuance of this *Certificate*, submit to the *Director* for review, two copies of a completed Certificate of Requirement with a registerable description of the *Site*; and
 - (b) Within 10 calendar days of receiving the Certificate of Requirement authorized by the *Director*, register the Certificate of Requirement in the appropriate Land Registry Office on title to the *Site* and submit to the *Director* the duplicate registered copy immediately following registration.
- (15) Pursuant to Section 197 of the Environmental Protection Act, neither the *Owner* nor any person having an interest in the *Site* shall deal with the *Site* in any way without first

giving a copy of this *Certificate* to each person acquiring an interest in the *Site* as a result of the dealing.

Inspections by the Ministry

- (16) No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *OWRA*, the *EPA*, the *PA*, the *SDWA* or the *NMA*, of any place to which this *Certificate* relates, and without limiting the foregoing:
- (a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *Certificate* are kept;
 - (b) to have access to, inspect, and copy any records required to be kept by the conditions of this *Certificate*;
 - (c) to inspect the *Site*, related equipment and appurtenances;
 - (d) to inspect the practices, procedures, or operations required by the conditions of this *Certificate*; and
 - (e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *Certificate* or the *EPA*, the *OWRA*, the *PA*, the *SDWA* or the *NMA*.

Information and Record Retention

- (17) Any information requested, by the *Ministry*, concerning the *Site* and its operation under this *Certificate*, including but not limited to any records required to be kept by this *Certificate* shall be provided to the *Ministry*, upon request, in a timely manner.
- (18) The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *Certificate* or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
- (a) an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any term or condition of this *Certificate* or any statute, regulation or other legal requirement; or
 - (b) acceptance by the *Ministry* of the information's completeness or accuracy.
- (19) The *Owner* shall ensure that a copy of this *Certificate*, in its entirety and including all its Notices of Amendment, and the most current approved Design and Operation Plan for the *Site*, are retained at the *Site* at all times.

2. SITE OPERATION

Operation

- (1) The *Site* shall be operated and maintained at all time including management and disposal of all waste in accordance with the *EPA, Regulation 347*, and the conditions of this *Certificate*. At no time shall the discharge of a contaminant that causes or is likely to

cause an adverse effect be permitted

Signs

- (2) A sign shall be installed and maintained at the main entrance/exit to the *Site* on which is legibly displayed the following information:
 - (a) the name of the *Site* and *Owner*;
 - (b) the number of the *Certificate*;
 - (c) the name of the *Operator*;
 - (d) the normal hours of operation;
 - (e) the allowable and prohibited waste types;
 - (f) the telephone number to which complaints may be directed;
 - (g) a warning against unauthorized access;
 - (h) a twenty-four (24) hour emergency telephone number (if different from above);
and
 - (i) a warning against dumping outside the *Site*.
- (3) The *Owner* shall install and maintain signs to direct vehicles to working face, recycling areas, *HHW* depot and composting area.
- (4) The *Owner* shall provide signs at recycling depot, *HHW* depot and composting area informing users what materials are acceptable and directing users to appropriate storage area.

Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic

- (5) The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

Burning Waste Prohibited

- (6) The *Owner* shall ensure that no burning of wastes and wood products is taking place at the *Site*.

Scavenging

- (7) Except as authorized by a by-law, the *Owner* shall ensure that no scavenging is taking place at the *Site*.

Site Access

- (8) Waste shall only be accepted at the *Site* from the City of Clarence Rockland and Wards 2 and 4 of the Township of Alfred Plantagenet.
- (9) Waste shall only be accepted from 8:00 a.m. to 5:00 p.m. The *Site* shall be closed on

Sundays and Holidays. The *Owner* may provide alternative hours of operation within the above hours provided that they are correctly posted at the *Site*, that suitable public notification is given of any change.

- (10) On-site equipment used for daily site preparation and closing activities may be operated one (1) hour before and two (2) hours after the hours of operation approved by this *Certificate*.
- (11) With the prior written approval from the *District Manager*, the time periods may be extended to accommodate seasonal or unusual quantities of waste.

Site Security

- (12) No waste shall be received, landfilled or removed from the *Site* unless the operator or attendant is present and supervises the operations during operating hours. The *Site* shall be closed when a site operator is not present to supervise landfilling operations.
- (13) The *Site* shall be operated and maintained in a safe and secure manner. During non-operating hours, the *Site* entrance and exit gates shall be locked.

Visual Screening

- (14) The *Owner* shall maintain the screening berm constructed along Lalonde Road as per Drawing No. I-3-3 entitled "Waste Contours" and Drawing No. I-3-9 entitled "Road and Berm Sections" of Item 18(a) of Schedule "A" attached to this *Certificate*.
- (15) The *Owner* shall maintain the trees providing the screening of the *Site* operations from Lalonde Road in the area east of the entrance.

3. EMPLOYEE TRAINING

- (1) A training plan for all employees that operate any aspect of the *Site* shall be developed and implemented by the *Operator*. Only *Trained Personnel* shall operate any aspect of the *Site* or carry out any activity required under this *Certificate*.
- (2) All *Trained Personnel* operating the *HHW* depot shall be trained in the following areas:
 - (a) waste paint identification, analysis information and separating procedures for the wastes being handled at the *HHW* depot;
 - (b) proper storage, handling, sorting and shipping procedures of the wastes being handled at the *HHW* depot; and
 - (c) occupational health and safety concerns pertaining to the wastes to be handled at the *HHW* depot.

4. COMPLAINTS RESPONSE PROCEDURE

- (1) If at any time the *Owner* receives complaints regarding the operation of the *Site*, the *Owner* shall respond to these complaints according to the following procedure:
 - (a) The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;
 - (b) The *Owner*, upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
 - (c) The *Owner* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

5. EMERGENCY RESPONSE

- (1) Any spills, fires or other emergency situations shall be forthwith reported directly to the *Ministry's* Spills Action Centre (1-800-268-6060) and shall be cleaned up immediately.
- (2) In addition, the *Owner* shall submit, to the *District Manager* a written report within five (5) business days of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the *Site*.
- (3) All wastes resulting from an emergency situation shall be managed and disposed of in accordance with *O.Reg. 347*.
- (4) All equipment and materials required to handle the emergency situations shall be:
 - (a) kept on hand at all times that waste landfilling and/or handling is undertaken at the *Site*; and
 - (b) adequately maintained and kept in good repair.
- (5) The *Owner* shall ensure that the emergency response personnel are familiar with the use of such equipment and its location(s).

6. RECORD KEEPING AND REPORTING

Daily Log Book

- (1) A daily log shall be maintained in written format and shall include the following information:
 - (a) the type, date and time of arrival, hauler (commercial waste), and quantity (tonnes or volume) of all waste and cover material received at the *Site*;
 - (b) documentation of types, quantities and source of generation of waste received at the *HHW* depot;
 - (c) type, amount and source of waste refused at the *HHW* depot;
 - (d) the area of the *Site* in which waste disposal operations are taking place;
 - (e) a record of litter collection activities and the application of any dust suppressants;
 - (f) a record of the daily inspections; and
 - (g) a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service.
- (2) Any information requested, by the *Director* or a *Provincial Officer*, concerning the *Site* and its operation under this *Certificate*, including but not limited to any records required to be kept by this *Certificate* shall be provided to the *Ministry*, upon request.

Daily Inspections and Log Book

- (3) An inspection of the entire *Site* and all equipment on the *Site* shall be conducted weekly the *Site* is in operation to ensure that: the *Site* is secure; that the operation of the *Site* is not causing any nuisances; that the operation of the *Site* is not causing any adverse effects on the environment and that the *Site* is being operated in compliance with this *Certificate*. Any deficiencies discovered as a result of the inspection shall be remedied within a reasonable time, including temporarily ceasing operations at the *Site* if needed.
- (4) A record of the inspections shall be kept in a daily log book that includes:
 - (a) the name and signature of person that conducted the inspection;
 - (b) the date and time of the inspection;
 - (c) the list of any deficiencies discovered;
 - (d) the recommendations for remedial action; and
 - (e) the date, time and description of actions taken.
- (5) A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Annual Report

- (6) A written report on the development, operation and monitoring of the *Site*, shall be

completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager*, by March 30 of the year following the period being reported upon.

- (7) The Annual Report shall include the following:
- (a) calculations of the volume of waste landfilled, the daily and intermediate covers, the final cover and the overall volume of the site capacity used during the reporting period;
 - (b) a comparison of the actual capacity used to the estimates of the capacity estimated;
 - (c) an estimate of the remaining site life;
 - (d) any changes in operations, equipment, or procedures used at the *Site*, any operating problems encountered and corrective actions taken;
 - (e) details on the monitoring program undertaken, outlining monitor locations, analytical parameters sampled, and frequency of sampling;
 - (f) an analysis and interpretation of the surface water and groundwater monitoring data, a review of the adequacy of the monitoring program, conclusions of the monitoring data, and recommendations for any changes that may be necessary;
 - (g) summary of inspections undertaken at the *Site*;
 - (h) summary of any public complaints received and the responses made;
 - (i) summary of activities undertaken at the *HHW* depot;
 - (j) a discussion of cover stockpile activities including use, timing, locations and erosion protection;
 - (k) status update on the final cover placement, and seeding activities undertaken in the closed sections of the Landfill;
 - (l) a discussion of the waste diversion performance achieved by the *Owner* reported on a per capita basis;
 - (m) a statement as to compliance with all conditions of this *Certificate* and the other relevant Ministry's groundwater and surface water requirements;
 - (n) recommendations respecting any proposed changes in the operation of the *Site*; and

- (o) any other information that the *Regional Director* or the *District Manager* may require.

7. LANDFILL DESIGN AND DEVELOPMENT

Approved Waste Types

- (1) Only solid non-hazardous municipal waste including asbestos, dewatered sewage sludge and contaminated soil as defined under *Reg. 347* shall be accepted at the *Site* for landfilling.
- (2) No liquid industrial waste or hazardous wastes as defined under O. Reg. 347 and O.Reg. 558 shall be disposed at the *Site*.
- (3) The *Owner* may continue to accept liquid and solid household hazardous wastes and products requiring special handling or disposal practices, at the *HHW* depot.
- (4) The *Owner* shall develop and implement a program to inspect waste to ensure that the waste received at the *Site* is of a type approved for acceptance under this *Certificate*.
- (5) The *Owner* shall ensure that all loads of waste are properly inspected by *Trained personnel* prior to acceptance at the *Site* and that the waste vehicles are directed to the appropriate areas for disposal or transfer of the waste. The *Owner* shall notify the *District Manager*, in writing, of load rejections at the *Site* within five (5) business days from their occurrence.

Capacity

- (6) (a) As approved by the Environmental Assessment dated October 21, 1999, the total additional waste disposal capacity of the expanded *Site* is 740,000 cubic metres of waste, daily cover and intermediate cover, but excluding the final cover.
- (b) The total approved waste disposal capacity for the *Site* is 974,000 cubic metres of waste, daily cover and intermediate cover, but excluding the final cover. This total waste disposal capacity includes the additional disposal capacity from Condition (6)(a), above, and the waste disposed of prior to the above Environmental Assessment approval.

Waste Placement

- (7) No waste shall be placed below existing ground within the fill area to maintain a vertical separation between the groundwater table and the waste.
- (8) Disposal of waste shall only occur within the areas as delineated on Drawing - Fig. No. I-3-3 of Item 18(a) of Schedule "A" attached to this *Certificate*.

- (9) No waste shall be placed above the final contours shown on Drawing - Fig. No. I-3-4 of Item 18(a) of Schedule "A" attached to this *Certificate*.

Service Area

- (10) Only waste that is generated within the boundaries of the City of Clarence Rockland and Wards 2 and 4 of the Township of Alfred Plantagenet may be accepted at the *Site*.

Cover

- (11) Daily and interim cover material shall be applied in accordance with Section 3.3 of Item 14(a) of Schedule "A" attached to this *Certificate* and as follows:

Daily cover

- (a) By the end of each working day, the entire working face shall be covered with a minimum thickness of 100 mm of daily cover.

Interim cover

- (b) In areas where landfilling has been temporarily discontinued for twelve (12) months or more, a minimum thickness of 300 mm of intermediate cover shall be placed.

Final Cover

- (c) Final Cover - In areas where landfilling has been completed to final contours, a minimum 600 millimetre thick layer of soil of medium permeability and 150 millimetres of top soil (final cover) shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.
- (12) (a) Contaminated soil that is not a hazardous waste as defined by O.Reg. 347, either mixed with clean soil or own its own, and biosolids from the City of Clarence Rockland's Water Pollution Control Plant mixed with soil, compost and/or wood chips, may be used as daily cover provided that its use does not cause any adverse effects;
- (b) Subject to Condition 12 (a), if the application of the contaminated soil as a daily cover causes operational problems, odours or other environmental adverse effects as verified by a *Provincial Officer*, the use of the contaminated soil shall be immediately discontinued and only clean soil or biosolids mixed with soil, compost and/or wood chips shall be used as daily cover;
- (c) Subject to Condition 12 (a), if the application of the biosolids as a daily cover causes operational problems, odours or other environmental adverse

effects as verified by a *Provincial Officer*, the use of the biosolids shall be immediately discontinued;

- (d) Compost mixed with clean soil and wood chips mixed with clean soil may also be used as alternative material for daily cover; and
 - (e) The *Owner* may mix de-watered sludge with the topsoil. The sludge shall be accounted for in the total volume of waste that was approved for landfilling at the *Site*. If the use of de-watered sludge causes an adverse effect, as verified by a *Provincial Officer*, its use shall be discontinued and only clean soil shall be used.
- (13) Except for the types already approved by Condition 7(12). any alternative materials to soil may be used as weekly and interim cover material, based on an application with supporting information and applicable fee for a trial use or permanent use, submitted by the *Owner* to the *Director*, copied to the *District Manager* and as approved by the *Director* via an amendment to this *Certificate*. The alternative material shall be non-hazardous according to *Reg. 347* and will be expected to perform at least as well as soil in relation to the following functions:
- (a) Control of blowing litter, odours, dust, landfill gas, gulls, vectors, vermin and fires;
 - (b) Provision for an aesthetic condition of the landfill during the active life of the *Site*;
 - (c) Provision for vehicle access to the active tipping face; and
 - (d) Compatibility with the design of the *Site* for groundwater protection, leachate management and landfill gas management.

8. LANDFILL MONITORING

Landfill Gas

- (1) Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the *Site*, especially enclosed structures which at times are occupied by people. If required, the *Owner* shall ensure that any buildings or structures at the *Site* contain adequate preventive measures to relieve any possible landfill gas accumulation.
- (2) Landfill gas monitoring shall be undertaken according to the program described in Section 5.4 of Item 18(a) of Schedule "A" attached to this *Certificate*.
- (3) Any changes to the landfill gas monitoring program shall be submitted to the *Director* for approval, prior to their implementation.

Compliance Limits

- (4) The *Site* shall be operated in such a way as to ensure compliance with the following:

- (a) Reasonable Use Guideline B-7 for the protection of the groundwater at the *Site*; and
- (b) Provincial Water Quality Objectives included in the July 1994 publication entitled *Water Management Policies, Guidelines, Provincial Water Quality Objectives*, as amended from time to time or limits set by the *Regional Director*, for the protection of the surface water.

Surface Water and Ground Water

- (5) The *Owner* shall monitor groundwater as per Appendix G, Item 24 of Schedule "A".
- (6) The *Owner* shall monitor surface water as per Appendix G, Item 24 of Schedule "A".
- (7) A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience shall execute or directly supervise the execution of the groundwater monitoring and reporting program.
- (8) The *Owner* shall abide by the Certificate of Approval for Sewage Works under Section 53 of *Ontario Water Resources Act*, R.S.O. 1990 issued to construct, operate, maintain and monitor the proposed wetland and its discharge to the surface water regime, designed to control and treat storm water run-off and leachate-impacted groundwater at the *Site*.
- (9) Temporary berms and ditches shall be constructed around the active waste disposal area, as necessary, to prevent extraneous surface water from contacting the active working face.

Groundwater Wells and Monitors

- (10) The *Owner* shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.
- (11) Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.
- (12) Any groundwater monitoring well included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the *Owner*, as required.
 - (a) Unless a well is being abandoned, the *Owner* shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.
 - (b) All monitoring wells which are no longer required as part of the groundwater

monitoring program, and have been approved by the *District Manager* for abandonment, shall be decommissioned by the *Owner*, as required, in accordance with *O.Reg. 903*, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

Trigger Mechanisms and Contingency Plans

- (13) (a) The *Owner* shall follow the site-specific trigger mechanism program for groundwater contingency measures outlined in Appendix A, Item 20 of Schedule "A" and as revised by MOE correspondence in Appendix "A", Item 23 of Schedule "A".

(b) The *Owner* shall follow the site-specific trigger mechanism program for surface water contingency measures outlined in Appendix A of Item 20 of Schedule "A" and as revised by MOE correspondence in Appendix "A", Item 23 of Schedule "A".
- (14) No changes to the site-specific trigger mechanism shall be implemented prior to receiving approval from the *Director*.
- (15) In the event of a confirmed exceedence of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate, the *Owner* shall immediately notify the *District Manager*, and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.
- (16) If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:
 - (a) The *Owner* shall notify the *District Manager*, in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedences;
 - (b) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and
 - (c) The contingency measures shall be implemented by the *Owner* upon approval by the *District Manager* .
- (17) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the *Director* via an amendment to this *Certificate*.

Changes to the Monitoring Plan

- (18) The *Owner* may request to make changes to the monitoring program(s) to the *District Manager* in accordance with the recommendations of the annual report. The *Owner* shall make clear reference to the proposed changes in separate letter that shall accompany the annual report.
- (19) Within sixty (60) days of receiving the written correspondence from the *District Manager* confirming that the *District Manager* is in agreement with the proposed changes to the environmental monitoring program, the *Owner* shall forward a letter identifying the proposed changes and a copy of the correspondences from the *District Manager* and all other correspondences and responses related to the changes to the monitoring program, to the *Director* requesting the *Certificate* be amended to approve the proposed changes to the environmental monitoring plan prior to implementation.
- (20) In the event any other changes to the environmental monitoring program are proposed outside of the recommendation of the annual report, the *Owner* shall follow current ministry procedures for seeking approval for amending the *Certificate*.

9. CLOSURE PLAN

- (1) At least two (2) years prior to the anticipated date of closure of this *Site*, the *Owner* shall submit to the *Director* for approval, with copies to the *District Manager*, a detailed *Site* closure plan pertaining to the termination of landfilling operations at this *Site*, post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:
 - (a) a plan showing *Site* appearance after closure;
 - (b) a description of the proposed end use of the *Site*;
 - (c) a descriptions of the procedures for closure of the *Site*, including:
 - (i) advance notification of the public of the landfill closure;
 - (ii) posting of a sign at the *Site* entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
 - (iii) completion, inspection and maintenance of the final cover and landscaping;
 - (iv) *Site* security;
 - (v) removal of unnecessary landfill-related structures, buildings and facilities;
 - (vi) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas; and
 - (vii) a schedule indicating the time-period for implementing sub-conditions (i) to (vi) above;
 - (d) descriptions of the procedures for post-closure care of the *Site*, including:
 - (i) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
 - (ii) record keeping and reporting; and

- (iii) complaint contact and response procedures;
 - (e) an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and
 - (f) an updated estimate of the contaminating life span of the *Site*, based on the results of the monitoring programs to date.
- (2) Unless amended by the closure plan, closure of the Landfill will be done in accordance with the final contours shown on Figure I-3-4 of Item 18(a) of Schedule "A" attached to this *Certificate*.
- (3) The *Site* shall be closed in accordance with the closure plan as approved by the *Director*.

10. WASTE DIVERSION

- (1) The *Owner* shall direct as much waste from landfilling as is practical and affordable with a view to meeting the Provincial Waste Diversion Objectives, developed by the *Ministry* and as changed from time to time.
- (2) The *Owner* shall submit an annual Waste Diversion Statement as part of its Annual Report described in Condition No. 6 (6), and include the following:
- (a) updating summary of per capita waste diversion activities and quantities of waste diverted from disposal; and
 - (b) proposed waste diversion program for the next year that describes estimates of waste to be diverted.

11. HOUSEHOLD HAZARDOUS WASTE DEPOT

- (1) The *HHW* depot shall only accept household hazardous wastes and it shall be operated in accordance with the application for a Waste Disposal Site (Transfer) submitted June 1, 1995 and supporting information and as modified in the Design Operation and Maintenance Report, dated August 2000.
- (2) No wastes shall be received at the *HHW* depot prior to April 1, or after October 31 and no waste shall be stored at the *HHW* depot from December 31 to March 31.
- (3) (a) No PCB's shall be accepted at this *HHW* depot. Oil and oil-based paints which have been manufactured prior to 1972, or whose manufacturing date cannot be determined may contain PCB's and shall be handled in the manner prescribed:
- (i) The oil and oil-based paints shall not be mixed (bulked) with other paints prior to testing. Paints which are lab-packed are not considered to be mixed under this *Certificate*.

- (ii) The oil and oil-based paints shall be tested for PCB's content and shall be handled in the manner outlined in sub condition (a)(iii) if found to contain PCB's.
 - (iii) If the oil and oil-based paints are found to have PCB's at or above levels identified in sub condition (a) (iv) , it shall be forthwith reported to the *District Manager* and shall be managed in accordance with Ontario Regulation 362/92 and stored or removed from the *HHW* depot to an approved PCB's storage site, in accordance with written instructions from the *District Manager*.
 - (iv) The oil and oil-based paints shall not be distributed for reuse if they have any measurable PCB's content. The oil and oil-based paint is considered to be a PCB's waste, if measured levels are equal to or greater than 50 parts per million.
- (b) Except as specified in sub condition (a) (iv) , paints collected at the *HHW* depot may be returned or sold to the general public for reuse provided all transactions are recorded by invoice. Information on the type and volume of paint returned to the public through this *HHW* depot shall be recorded in the report specified in Condition No. 6 (6).

Storage

- (4) (a) The *Owner* shall ensure that the wastes are stored in a safe and secure manner, that the operation of the *HHW* depot does not interfere with any other activities undertaken at the *Site* and that the wastes are properly handled, packaged or contained so as not to pose any threat to the general public, Site personnel and the environment.
- (b) No storage facilities other than those approved under this *Certificate* shall be used and fixed storage facilities shall not be moved, replaced or altered.
- (c) All storage buildings and tanks shall be clearly marked indicating the type and nature of the hazardous waste stored. All points of access to the storage facilities shall be posted to warn that the area contains hazardous materials. Smoking restrictions shall be adhered to and non-smoking signs shall be posted as required by Regulation.
- (d) All storage buildings shall be properly ventilated and shall be constructed in compliance with fire regulations, municipal by-laws and approvals and in accordance with Ministry of Labour guidelines.
- (e) All household hazardous waste storage tanks and buildings shall be maintained

under lock and key and access to these facilities shall be limited to trained Site personnel.

- (5) Wastes that are collected and stored shall be in amounts which can be safely handled at the *HHW* depot. In the event that larger amounts are received than anticipated, the *Owner* shall have extra drums and lab-packed containers available on the premises for the storage of the additional waste collected. When the *HHW* depot capacity is reached, the *Owner* shall make arrangements for the removal of waste from the *HHW* depot as soon as possible, but in any event, within five (5) working days.
- (6) Except as specified under Conditions 11(3)(a)(iii) and (b), all waste collected shall be transported from the *Site* by an approved waste management system and disposed of at waste landfill, transfer and processing sites certified to accept these types of wastes.

12. COMPOSTING

- (1) Composting operations at the *Site* shall be carried out in a manner as not to interfere with normal waste disposal operations as approved in this *Certificate*.
- (2) Should the ensuing compost be destined for use by the general public, composting operations at the *Site* shall be carried out in accordance with the Ministry's *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario*, dated November 1991, and revised from time to time.
- (3) Should the ensuing compost be destined for use as alternative cover material at the *Site*, composting operations at the *Site* must be carried out in a manner that does not cause groundwater or surface water contamination, offensive odours or encourage the presence of vermin or any other adverse effect.

13. LIAISON COMMITTEE

- (1) The *Owner* shall take all reasonable steps to establish, maintain and participate in a Site Liaison Committee, which is to function within the Terms of Reference, as proposed in Appendix C of Item 18(a) of Schedule "A" attached to this Certificate. The public shall be given an opportunity to comment and provide input before the Terms of Reference are finalized and ready for implementation. The Terms of Reference shall be amended from time to time according to an appropriate procedures included in the Terms of Reference.
- (2) A copy of the Terms of Reference shall be provided to the *District Manager*.
- (3) The Site Liaison Committee shall serve as a focal point for dissemination, consultation, review and exchange of information regarding the operation of the *Site*, results of the environmental monitoring, maintenance, complaint resolution and any new approvals or amendments to the existing approvals related to the operation of this *Site*.

SCHEDULE "A"

1. Application for a Certificate of Approval for a Waste Disposal Site, signed by Marco Lalonde , Township of Clarence, and dated July 22, 1992, for an interim expansion of the landfill with the following supporting documentation prepared by McNeely Engineering Consultants Limited and Golder Associates Limited:
 - (a) Volume I - Request for Exemption Environmental Assessment Act, dated September 1992
 - (b) Volume II - Site Hydrogeology, dated July 1992
 - (c) Volume III - Site operations, Development and Closure Plans, dated July 1992
 - (d) Volume IV - Natural Environmental Evaluation, dated July 1992
 - (e) resolution #5259
2. Report entitled "Hydrogeological Activities, September 1992 to November 1992, Landfill Site Lot 15, Concession IV, Township of Clarence, Ontario" prepared by Golder Associates Limited and dated January 1993.
3. Reply to MOEE Comments on Interim Expansion Township of Clarence Landfill Site, prepared by the Township of Clarence and dated May 4, 1993.
4. Application for a Certificate of Approval for a Waste Disposal Site, signed by Marco Lalonde, Township of Clarence, and dated October 6, 1993, for an interim expansion of the landfill.
5. Letter from Gerry Lalonde, McNeely Engineering Consultants Limited to E. Zaltsberg Ministry of the Environment, dated October 15, 1993, to further clarify the changes in the landfill size and in the total site size.
6. Report entitled "1993 Site Operations and Hydrogeological Monitoring Program, Landfill Site Lot 15, Concession IV, Township of Clarence, Ontario", dated January 1994 and prepared by Golder Associates Ltd.
7. Report entitled "Addendum Report on Waste Management and Hydrogeological Issues and Comments on Draft Certificate of Approval Application for interim Expansion Landfill Site, Lot 15, Concession IV, Township of Clarence, Ontario", dated March 1994 and prepared by Golder Associates Limited and McNeely Engineering Consultants Limited and revised Figure 2: "Site Plan and Study Area", dated March 22, 1994.
8. Report entitled "Addendum Report", dated April 1994 and prepared by Golder Associates Limited and McNeely Engineering Consultants Limited as an addendum to March 1994 Addendum Report on Waste Management and Hydrogeological Issues.
9. Application for a Certificate of Approval for a Waste Disposal Site, signed by Jean-Denis Hurtubise, Township of Clarence, and dated June 1, 1995, to establish a Household Hazardous Waste Transfer Depot to service the Township of Clarence.

10. Letter to Kim Lendvay, MOEE Eastern Region, from Gerry Lalonde, McNeely Engineering Consultants Ltd., dated July 7, 1995 re: Response to MOEE letter dated June 26, 1995.
11. Letter to Michel Dostaler, Township of Clarence from Kim Lendvay, MOEE Eastern Region, dated June 26, 1995 re: Request for additional information.
12. A report entitled "Township of Clarence Household Hazardous Waste Transfer Station Engineering Report, Building Plan and operation and Management Plan"; prepared by McNeely Engineering consultants Ltd, and dated October 1995.
13. A three page document entitled "*Supporting Information to Application for Amendment to Certificate of Approval No. A 471203, Owner of Clarence-Rockland, February 16, 1998*" signed by Gerry Lalonde, P.Eng of Stanley Consulting Group Ltd.
14. A three page document entitled, Supporting Information to Application for Amendment to Certificate of Approval No. A 471203, City of Clarence Rockland, February 16, 1998 signed by Gerry Lalonde, P.Eng. of Stanley Consulting Group Ltd.
15. Application for Approval of a Waste Disposal Site dated February 17, 1998, and signed by R. Sarazin of the Corporation of the City of Clarence Rockland.
16. Letter dated March 12, 1998, from R. Sarazin of the Corporation of the City of Clarence Rockland to Director Approvals, Ministry of the Environment.
17. Application for Approval of a Waste Disposal Site, dated April 30, 1999 and the attached supporting documents.
18. Application for a Certificate of Approval of a Waste Disposal Site dated September 11, 2000 and signed by R. Sarazin, The Corporation of the City of Clarence Rockland, for expansion to the existing landfill site, with the following supporting documentation:
 - (a) Volume I - Report entitled "City of Clarence Rockland, EPA Landfill Expansion, Design, Operation and Maintenance Report", dated August 2000, prepared by Stantec Consulting Ltd.
 - (b) Volume II - Report entitled "Hydrogeological and Geotechnical Design Considerations, The City of Clarence Rockland, Landfill Expansion, Application under the Environmental Protection Act, The City of Clarence Rockland, Ontario", dated September 2000, prepared by Golder Associates Ltd.
 - (c) Volume III - Report entitled "Design and Operation , Geotechnical Memorandums, The City of Clarence Rockland, Landfill Expansion, Application under the Environmental Protection Act, The City of Clarence Rockland, Ontario", dated September 2000, prepared by Golder Associates Ltd.

- (d) Volume IV - Report entitled "The City of Clarence Rockland, EPA Landfill Expansion - Year 2000, Appendix IV", dated August 2000, prepared by Stantec Consulting Ltd.
19. Facsimile transmission from Gerry Lalonde, Stantec Consulting Ltd. to Roman Krawczyniuk, Ontario Ministry of the Environment, dated November 20, 2000, containing additional information related to review of the potential noise impacts.
 20. Report entitled "2001 Annual Report on Groundwater and Surface Water Monitoring Program, Clarence-Rockland Landfill Site, City of Clarence-Rockland, Ontario", dated March 2002 and prepared by Golder Associates Ltd.
 21. Application for a waste disposal site amendment dated August 26, 2003, signed by Richard Sarazin, Director of Physical Services, from the City of Clarence Rockland. re: using biosolids as alternative daily cover.
 22. Letter dated February 11, 2004, signed by Gerry Lalonde, Stantec Consulting Ltd. to A. Mobberley, MOE. re: additional biosolids handling procedures and mixing locations.
 23. Report entitled "City of Clarence-Rockland 2008 Annual Operations Monitoring Report", dated March 2009 and prepared by Stantec Consulting Ltd.
 24. Report entitled "2008 Annual Report on Groundwater and Surface Water Monitoring Program, Clarence-Rockland Landfill Site, City of Clarence-Rockland, Ontario", dated March 2009 and prepared by Golder Associates Ltd.

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

1. The reason for Conditions 1(1), (2), (4), (5), (6), (7), (8), (9), (10), (17), (18) and (19) is to clarify the legal rights and responsibilities of the *Owner* and *Operator* under this Certificate of Approval.
2. The reasons for Condition 1(3) is to ensure that the *Site* is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the *Owner*, and not in a manner which the *Director* has not been asked to consider.
3. The reasons for Condition 1(11) are to ensure that the *Site* is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the *Director* is informed of any changes.
4. The reasons for Condition 1(12) are to restrict potential transfer or encumbrance of the *Site* without the approval of the *Director* and to ensure that any transfer of encumbrance can be made

only on the basis that it will not endanger compliance with this Certificate of Approval.

5. The reason for Condition 1(13) is to ensure that the successor is aware of its legal responsibilities.
6. Conditions 1 (14) and (15) are included, pursuant to subsection 197(1) of the *EPA* , to provide that any persons having an interest in the *Site* are aware that the land has been approved and used for the purposes of waste disposal.
7. The reason for Condition 1(16) is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Certificate of Approval. This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the *Act* , the *OWRA* , the *PA* , the *NMA* and the *SDWA* .

SITE OPERATION

8. The reasons for Conditions 2(1), 2(5) and 6(3) are to ensure that the *Site* is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.
9. The reason for Conditions 2 (2), 2(3) and 2(4) is to ensure that users of the *Site* are fully aware of important information and restrictions related to *Site* operations and access under this *Certificate*.
10. The reason for Condition 2(6) is that open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard.
11. Condition No. 2 (7) is included to ensure protection of public health and safety, and minimization of potential damage to environmental controls, monitoring and other works at the Site due to uncontrolled removal of materials from waste at the Site.
12. The reasons for Condition 2(8), 2(9) and 2(10) are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.
13. The reasons for Condition 2(11) and 2(12) are to ensure that the *Site* is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the *Site* by preventing unauthorized access when the Site is closed and no site attendant is on duty.
14. Conditions Nos. 2 (13), 2(14) and 2(15) are included to ensure that the Site is designed and operated in a way that does not result in a hazard or nuisance to the natural environment or any persons.

EMPLOYEE TRAINING

15. The reason for Conditions 3(1) and 3(2) is to ensure that the *Site* is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

COMPLAINTS RESPONSE PROCEDURE

16. The reason for Condition 4(1) is to ensure that any complaints regarding landfill operations at this *Site* are responded to in a timely and efficient manner.

EMERGENCY RESPONSE

17. Conditions 5(1) and 5(2) are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.
18. Conditions 5(3), 5(4) and 5(5) are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

RECORD KEEPING AND REPORTING

19. The reason for Conditions 6(1) and 6(2) is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this Certificate of Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the *EPA* and its regulations.
20. The reason for Conditions 6(4) and 6(5) is to ensure that detailed records of *Site* inspections are recorded and maintained for inspection and information purposes.
21. The reasons for Conditions 6(6) and 6(7) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

LANDFILL DESIGN AND DEVELOPMENT

22. The reason for Conditions 7(1) to 7(6) inclusive and 7(10) is to specify the approved areas from which waste may be accepted at the *Site* and the types and amounts of waste that may be accepted for disposal at the *Site*, based on the *Owner*'s application and supporting documentation.
23. Conditions Nos. 7(7), 7(8) and 7(9) are included to specify restrictions on the extent of landfilling at this *Site* based on the *Owner*'s application and supporting documentation.

24. The reasons for Condition 7(11) are to ensure that daily/weekly and intermediate cover are used to control potential nuisance effects, to facilitate vehicle access on the *Site*, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the *Site*.
25. The reasons for Condition 7 (12) and 7(13) is to specify the approved alternative cover material and to specify requirements for use of alternative cover material at the *Site* .

LANDFILL MONITORING

26. Reasons for Condition 8(1), 8(2) and 8(3) are to ensure that off site migration of landfill gas is monitored and all buildings at the *Site* are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the *Site*.
27. Condition 8(4) is included to provide the groundwater and surface water limits to prevent water pollution at the *Site*.
28. Conditions 8(5) to 8(9) inclusive are included to require the Owner to demonstrate that the *Site* is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.
29. Conditions 8(10), 8(11) and 8(12) are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.
30. Conditions 8(13) to 8(17) inclusive are added to ensure the *Owner* has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the *Site's* compliance point.
31. Reason for conditions 8(18), 8(19) and 8(20) is to streamline the approval of the changes to the monitoring plan.

CLOSURE PLAN

32. The reasons for Condition 9 are to ensure that final closure of the *Site* is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

WASTE DIVERSION

33. Condition 10 is included because they were proposed by the Environmental Assessment Board's report entitled "*Township of Clarence - Clarence Landfill Site, Reasons for Decisions and*

Decisions ", dated May 18, 1994, prepared for the hearing that was required for the Provisional Certificate of Approval for a Waste Disposal Site No. A471203 dated June 20, 1994.

HOUSEHOLD HAZARDOUS WASTE DEPOT

34. Conditions Nos. 11(1) and 11(2) are included to ensure that the HHW depot is operated in accordance with the application and supporting documentation and not in a manner which the Director has not been asked to consider.
35. Conditions Nos. 11(3), 11(4) and 11(5) are included to ensure that the HHW depot is used only to collect and handle approved wastes from approved HHW depot users and that the waste is stored in a secure and safe manner.
36. Condition No. 11(6) is included to insure that all waste is transported and disposed of in an environmentally acceptable manner in accordance with legislation governing the handling of the waste material.

COMPOSTING

37. Condition No. 12 is included to ensure that the Owner undertakes the composting activities in accordance with Ministry's requirements and in a manner that would not result in a hazard or nuisance to the natural environment or any persons.

LIAISON COMMITTEE

38. Condition No. 13 is included to ensure that the Owner takes all reasonable steps to establish a forum for the exchange of information and public dialogue on activities carried out at the Site, so that this open communication with the public and local authorities helps in maintaining high standards for Site operations and provides environmental protection.

This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A471203 issued on December 13, 1991 and June 20, 1994 and associated notices.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;

8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 21st day of October, 2009



Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

RM/
c: District Manager, MOE Cornwall
Gerry Lalonde, Stantec Consulting Ltd.

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Ministry of the Environment / Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL WASTE DISPOSAL SITE NUMBER A471203 Notice No. 4

RECEIVED

APR 02 2004

TIME: STANTEC

The Corporation of the City of Clarence-Rockland 1560 rue Laurier Rockland, Ontario K4K 1P7

Site Location: City of Clarence-Rockland Municipal Waste Disposal Site Lot 15, Concession 4 Clarence-Rockland City, United Counties of Prescott and Russell

You are hereby notified that I have amended Provisional Certificate of Approval No. A471203 issued on December 13, 1991 for a 12 hectare landfilling area within a total site area of 50 hectares, as follows:

Condition 20 is hereby amended to read as follows:

- 20. a) Contaminated soil that is not a hazardous waste as defined by O.Reg. 347 and O. Reg. 558, either mixed with clean soil or own its own, and biosolids from the City of Clarence-Rockland's Water Pollution Control Plant mixed with soil, compost and/or wood chips, may be used as daily cover provided that its use does not cause any adverse effects;
b) Subject to Condition 20 (a), if the application of the contaminated soil as a daily cover causes operational problems, odours or other environmental adverse effects as verified by a Provincial Officer, the use of the contaminated soil shall be immediately discontinued and only clean soil or biosolids mixed with soil, compost and/or wood chips shall be used as daily cover;
c) Subject to Condition 20 (a), if the application of the biosolids as a daily cover causes operational problems, odours or other environmental adverse effects as verified by a Provincial Officer, the use of the biosolids shall be immediately discontinued and only clean soil contaminated shall be used as daily cover; and
d) Compost mixed with clean soil, and wood chips mixed with clean soil may also be used as alternative material for daily cover.

The following items are hereby added to schedule "A".

- 16. Application for a waste disposal site amendment dated August 26, 2003, signed by Richard Sarazin, Director of Physical Services, from the City of Clarence Rockland. re: using biosolids as alternative

daily cover.

17. Letter dated February 11, 2004, signed by Gerry Lalonde, Stantec Consulting Ltd. to A. Mobberley, MOE. re: additional biosolids handling procedures and mixing locations.

The reason for this amendment to the Certificate of Approval is as follows:

37. The reason for this amendment is to allow the use of biosolids from the City's Water Pollution Control Plant to be used as alternative daily cover at the City of Clarence-Rockland Municipal Waste Disposal Site, Certificate of Approval No. A471203.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A471203 dated December 13, 1991

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

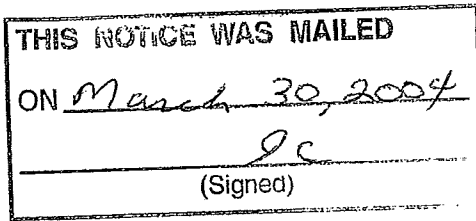
AND

The Director
Section 39, *Environmental Protection Act*
Ministry of Environment and Energy
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 23rd day of March, 2004



A large, stylized handwritten signature in black ink, positioned above a horizontal line.

Ian Parrott, P.Eng.
Director
Section 39, *Environmental Protection Act*

AM/

c: District Manager, MOE Cornwall
Gerry Lalonde, Stantec Consulting Ltd. ✓

APPENDIX C
MECP Correspondence

June 30, 2023

Ministry of the Environment and Climate Change
Cornwall Area Office
113 Amelia Street, 1st Floor
Cornwall, ON K6H 3P1

Attention: Melissa Lee, Senior Environmental Officer

**Re Solid Non-Hazardous Waste Disposal Site Inspection
Clarence-Rockland (Bourget) Landfill Site**

Dear Melissa,

Further to your inspection completed at the Clarence Rockland (Bourget) Landfill Site and the report dated March 13, 2023. Accordingly, we are providing the following information in response to items 1 to 5 listed under the "Actions Required" section of your letter.

Description of Issue (By no later than June 30, 2023)

Item 1: Submit a workplan with specific target dates for the completion of the steps to bring the site into compliance with Ministry Guideline B-7

Description of Work

Framework included as Attachment A.

This letter report provides context and details on the actions to be completed. The report will include a comprehensive list of all actions and timelines and will address Issues 1, 2 and 3.

Timeline

June 30, 2023; Draft program for discussion

Item 2: Submit a workplan with specific target dates for the completion of the steps to divert snow disposal to a new location.

Description of Work

The City has completed a comprehensive SDF analysis and this report has identified three (3) priority sites. The top two sites are owned by the same resident. The city completed a price appraisal and made an offer to purchase in mid February 2023. The owners are however reluctant to sell. The City has offered to pay the legal services and further advised them of the possibility of expropriation procedures. The file is currently ongoing and is being dealt with by the respective legal councils.

Timeline

On going - TBD

Item 3: Submit a workplan with specific target dates for the completion of the securement of all monitoring wells in accordance with Condition 8(10) of the ECA.

Description of Work

Monitoring well maintenance is on going and is part of the regular upkeep of the site. Reporting on the status is typically provided in the respective annual reports.

Timeline

On going

By no later than September 30, 2023

Item 4: Apply to amend ECA No. A471203 with:

Prepare and file the application to amend the ECA for the approval of the updated Design, Operations and Maintenance Plan (D&O Report) and of the updated Trigger Mechanism and Contingency Plans (Trigger Plans).

a): An updated Design and Maintenance Plan which reflects current site operations (e.g., waste diversion, gas monitoring, use of scale house, new household hazardous waste depot etc.) and:

The site currently operates and follows the Design and Operations Report as identified as Item 1 (c) of Schedule A of the ECA. This report is considered relevant and valid. Accordingly, the updated submission will augment the details of the current Design and Operations Report (i.e., include details on waste diversion from the site, landfill gas monitoring, the use of scales and the household hazardous waste facility).

b): An updated Trigger Mechanism and Contingency Plan.

The Ministry in their letter of March 13, 2023 indicated that the 2022 Annual Monitoring report will be submitted for “Technical Support Section” review and comment. As a result, it is not practical to update the Trigger Mechanism and Contingency Plan until such time that the review is completed, and the comments addressed.

Timeline

The submission of an application and the supplemental information in part which will include an updated Trigger Mechanism and Contingency Plan is not practical until such time that the Ministry has completed their technical review of the 2022 AMR. Once the review is complete, Ministry comments can be reviewed and addressed in the revised D&O report. Once the technical comments are received, we will be able to provide a timeline for submission of an application to amend the ECA.

Item 5: Apply to amend ECA No. 3362-6D7PL4 with updated works/drainage plans resulting from the site modifications performed since 2017.

We note that local Ministry Officer has over the past several years, on several occasions indicated that they did not support the requirement of having a “drainage plan” prepared as a result of the site entrance configuration. It is unclear at this time what has changed to now require a drainage plan. We note that the initial condition was based on the planned “reworking” of the site entrance. Ultimately, the site entrance was not altered other than with the addition of scales, scale house and a small HHW facility. These facilities occupy approximately 470 m² of areal space which results in: 0.3% of the licensed landfilling area and 0.09% of the total site area. These features will not result in any changes to the site drainage, and accordingly there is no need to amend the ECA.

Timeline

Submission of an application to amend the ECA not required.

CITÉ DE / CITY OF CLARENCE-ROCKLAND

Trusting this is satisfactory.

Yours truly,

City of Clarence-Rockland



Denis Longpré

Manager of Environment

City of Clarence-Rockland

dlongpre@clarence-rockland.com

**Ministry of the Environment
and Climate Change**
Cornwall Area Office
113 Amelia Street, 1st Floor
Cornwall ON K6H 3P1
Telephone: 613 933-7402 or
1 800 860-2760
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**Ministère de l'Environnement et de
l'Action en matière de changement climatique**
Bureau de secteur de Cornwall
113, rue Amelia, 1^{er} étage
Cornwall (Ontario) K6H 3P1
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March 13, 2023

The Corporation of the City of Clarence-Rockland
1560 Laurier Street
Rockland, ON K4K 1P7

Attention: Denis Longpre, Manager of Environment

Sent via e-mail: dlongpre@clarence-rockland.com

Mr. Longpre:

**RE: Solid non-hazardous waste disposal site inspection
Clarence-Rockland (Bourget) Landfill Site
2335 Lalonde Road, Bourget (formerly identified as Lot 15, Concession 4)**

On January 17 and 18, I undertook a Solid Non-Hazardous Waste Disposal Site inspection of the above-noted site to evaluate compliance with the terms and conditions of ECA No. A471203 and relevant legislation, specifically the Environmental Protection Act and Ontario Regulation 347 - Waste Regulation. The inspection included the review of ongoing non-compliance issues identified in the previous (2017) inspection report, the 2021 Annual Monitoring Report (Jp2g, 2022), the 2021 annual Operations Report (Jp2g, 2022) the most up to date ministry technical reviews, logs retained at the site. The inspection consisted of a telephone interview and site visit with Mr. Denis Longpre, Environmental Manager, Solid Waste and Mr. Nicholas Brunet, Environmental Infrastructure Technologist, both with the City of Clarence Rockland. The inspection did not include a detailed assessment of the household hazardous waste depot or onsite stormwater management facility/attenuation pond; ministry technical support comments on the 2022 monitoring report are required to properly evaluate its function. The results of the inspection are detailed in the attached report.

The City of Clarence-Rockland has made improvements in recent years which have benefited the overall operation of the Bourget Landfill. These improvements include the installation of a scale/scale house to better estimate waste volumes, the purchase of a new compactor, increased accessibility through site plan changes to encourage waste separation and the installation of a larger more functional household hazardous waste depot.

While these improvements are expected to encourage better waste management at the site, the existing and possibly worsening environmental impacts require a focused compliance strategy. The inspection found that the landfill is causing an environmental impact beyond its current contaminant attenuation zone and is not equipped with a current Design, Operation and

Maintenance Report or Trigger Mechanism and Contingency Plan to guide the City through issues of groundwater and surface water impacts. Further, the continued use of the landfill site as a snow disposal area presents serious concerns for groundwater impact by leachate and is interpreted to be an ongoing violation of Condition 4(2) of the ECA (failure to operate the site such that it remains in compliance with Guideline B-7). The ministry has requested that snow disposal stop at the site in the last (2017) inspection report and the consultants who authored the 2021 Annual Monitoring Report and Annual Operations Report (Jp2g, 2022) also recommend the practice be banned. I acknowledge that the City of Clarence Rockland takes these matters seriously and is continuing to endeavour to address them.

Condition 2(17) of the ECA (requirement to amend ECA No. 3362-6D7PL4)

While the undersigned was of the opinion in the 2017 inspection that the (2017) revisions to site plan (2015) modifications rendered the net increase in impervious surfaces not significant enough to warrant an amendment to drainage plans, in the 2017 amendment application, the Permission's review engineer disagreed. The cancellation records state that new buildings, expanded waste diversion area and the presence of an adjacent conservation area warrant the need to amend the sewage works' site plan. As such, the requirement to amend ECA No. 3362-6D7PL4 with updated works/drainage plans resulting from the site modifications performed since 2017 is still outstanding.

Actions Required

By no later than **June 30, 2023**:

- 1) Submit a workplan with specific target dates for the completion of the steps to bring the site into compliance with ministry Guideline B-7.
- 2) Submit a workplan with specific target dates for the completion of the steps to divert snow disposal to a new location.
- 3) Submit a workplan with specific target dates to complete the securement of all monitoring wells in accordance with Condition 8(10) of the ECA.

By no later than **September 30, 2023**:

- 4) Submit an application to amend ECA No. A471203 with:
 - a. an updated Design, Operations and Maintenance Plan which reflects current site operations (e.g. waste diversion activities, gas monitoring, use of scale/scale house, new household hazardous waste depot etc.) and;
 - b. an updated Trigger Mechanism and Contingency Plan.

5) Submit an application to amend ECA No. 3362-6D7PL4 with updated works/drainage plans resulting from the site modifications performed since 2017.

Should you have any questions or concerns, please do not hesitate to contact me by phone at 613-551-6137 or e-mail at melissa.lee2@ontario.ca.

Thank you,

A handwritten signature in black ink that reads "Melissa Lee". The signature is written in a cursive, flowing style.

Melissa Lee
Senior Environmental Officer
Cornwall Area Office



CLARENCE-ROCKLAND (BOURGET) WDS AND HHWD
2335 LALONDE RD, CLARENCE-ROCKLAND, ON, K0A 1N0

Inspection Report

Entity: CITY OF CLARENCE-ROCKLAND
Inspection Start Date: 03/13/2023
Inspection End Date: 03/13/2023
Inspected By: Melissa Lee
Badge #: 1569



(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

The following item(s) have been identified as non-compliance/non-conformance, based on a "No" response captured for a legislative or best management practice (BMP) question (s), respectively.

Question Group: Operations

| | | | |
|--|---|----------------------|-------------|
| Question ID | OOL 7 | Question Type | Legislative |
| Question: Is the ministry satisfied with the groundwater monitoring program at the site? | | | |
| Legislative Requirement | EPA 27 (1); EPA R.R.O. 1990, Reg. 347 11 (7); | | |
| Observation/Corrective Action(s) | | | |
| Component Assessed: CLARENCE-ROCKLAND (BOURGET) WDS AND HHWD | | | |
| <p>No In 2017, the ministry's Technical Support Section Groundwater Unit undertook a review of the 2016 monitoring report. The reviewer requested that the monitoring well network for trigger compliance wells currently being utilized at the site to evaluate compliance with Reasonable Use Guideline be expanded:</p> <p>'I do not accept that only four monitoring wells, namely G37-01, G12-92, G42-10, and G43-11, are to be used for compliance triggers for contingency purposes. Wells 18-92, G26-94 and G29-97 shall be maintained as compliance wells to assess groundwater impacts around the perimeter of the site to ensure long term groundwater protection as the site is progressively developed.'</p> <p>This was done and the compliance assessment provided in the 2021 annual monitoring report (Jp2g, 2022) includes all above noted wells.</p> <p>The ministry will be reviewing the 2022 annual performance report in 2023 to ensure the groundwater monitoring program continues to effectively evaluate groundwater compliance.</p> <p>Despite the above, the Trigger Mechanism and Contingency Plans referenced in Condition 8 (13) of the ECA have not been updated since 2002; over the course of time some of the compliance wells referenced in the document have been removed, replaced or added. The contingency plans may be required to be updated to reflect the actual available actions available to address trigger exceedances. The Trigger Mechanisms and Contingency Plans form part of the approval when they are referenced in an ECA and the City can be held to carrying them out should a reasonable use exceedance be detected. If they are outdated and do not represent the current operation of the site, they should be updated.</p> | | | |

This should be done when the updates to the Design and Operations Plan are completed, then formalized in an application to amend the ECA.

| | | | |
|---|---|----------------------|-------------|
| Question ID | OOL 8 | Question Type | Legislative |
| Question: Are the monitoring wells maintained as required? | | | |
| Legislative Requirement | EPA 27 (1); EPA R.R.O. 1990, Reg. 347 11 (7); | | |
| Observation/Corrective Action(s) | | | |
| Component Assessed: CLARENCE-ROCKLAND (BOURGET) WDS AND HHWD | | | |
| No Condition 8 (10) of the ECA requires that all monitoring wells be capped, locks and protected from damage. The 2021 Annual Monitoring Report (Jp2G, 2022) describes that monitoring wells are not all secured and locks should be installed. | | | |

| | | | |
|---|-----------------|----------------------|-------------|
| Question ID | OOL 13 | Question Type | Legislative |
| Question: Are measures taken to manage landfill gas generated at the site? | | | |
| Legislative Requirement | EPA 27 (1); | | |
| Observation/Corrective Action(s) | | | |
| Component Assessed: CLARENCE-ROCKLAND (BOURGET) WDS AND HHWD | | | |
| No There is no requirement in the ECA to actively manage landfill gas, however, gas measurements have been recorded in previous years (2016-2019) at higher concentrations and the gas monitoring program described in the 2000 Design, Operation and Maintenance Plan should be updated to include interpretation and response to threshold exceedances in monitoring wells as well as any onsite buildings. | | | |

Question Group: Records / Reports

| | | | |
|---|-------|----------------------|-------------|
| Question ID | OOL 6 | Question Type | Legislative |
| Question: Are monitoring well samples taken and tested to determine the quality of the groundwater? | | | |

| | |
|---|---|
| Legislative Requirement | EPA 27 (1); EPA R.R.O. 1990, Reg. 347 11 (7); |
| Observation/Corrective Action(s) | |
| Component Assessed: CLARENCE-ROCKLAND (BOURGET) WDS AND HHWD No The 2021 Annual Monitoring Report (2022) recommends additional monitoring wells to the north to better track leachate impacted groundwater migration. A ministry technical review of the 2022 Annual Monitoring Report (expected to be submitted in March 2023) will evaluate whether further monitoring program changes are necessary to evaluate compliance with Guideline B-7. | |

MEMORANDUM

May 4, 2017

TO: Melissa Lee
Senior Environmental Officer
Cornwall Area Office
Eastern Region

FROM: Robert Holland
Hydrogeologist
Technical Support Section, Water Resources Unit
Eastern Region

RE: Clarence-Rockland Landfill
2016 Annual Monitoring Report
Environmental Compliance Approval (ECA) # A471203
Lot 15, Concession IV
City of Clarence-Rockland
United Counties of Prescott and Russell
Hydrogeological Review

I have reviewed the “City of Clarence –Rockland, ON 2016 Annual Monitoring Report, Final Report, march 2017” prepared by J-2g and I offer the following comments.

Table 11 of the report summarized the Reasonable Use (RU) Concentration compliance status of the site in 2016. Based on this information, I agree with the consultant that RU limits were exceeded for one or more trigger parameters in all directions northwest of the site in 2017. I also agree with the consultant that mitigation measures should be undertaken west and east of the site coincident with the predominant groundwater flow directions. The consultant suggests augmentation of the contaminant attenuation zone (CAZ) west of the site by land acquisition. I agree with this approach and would like further details on the acquisition of groundwater rights and/or lands to ensure long term compliance with Reasonable Use limits. A remedial work plan should be submitted by the owner to address these matters. At this time I am prepared to accept that road de-icing slat used along Lalonde Road may be contributing to groundwater impacts coincident with the area in and the southern boundary cut off wall and that no remedial measures are required at this time. De-icing agents used on roads are not deemed to be contaminants are per Ont. Reg. 339. The northern CAZ is adequate at this time.

I do not accept that only four monitoring wells, namely G37-01, G12-92, G42-10, and G43-11, are to be used for compliance triggers for contingency purposes. Wells 18-92, G26-94 and G29-97 shall be maintained as compliance wells to assess groundwater impacts around the perimeter of the site to ensure long term groundwater protection as the site is progressively developed.

Future reports should ensure that groundwater trend graphs are consistent with past graphs prepared by the previous consultant. The graphs present on only seven parameters. Hardness, alkalinity, COD, DOC, ammonia, and total phosphorous should be added to these graphs.

Thank you for providing me with an opportunity to comment on this matter. If you have any questions give me a call.

"Original Signed By"

Robert W. Holland, P.Geo.
RWH/dv

c: Bob Holland
GW PR CR C4 01 02

**Ministry of the Environment and
Climate Change**

Eastern Region
Ottawa District Office
Cornwall Area Office
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Tél:(613) 933-7404



July 21, 2017

The Corporation of the City of Clarence-Rockland
1560 Laurier Street
P.O. Box 909
Clarence-Rockland, ON K4K 1P7

Attention: Denis Longpré, Manager of Environment and Water, Infrastructure and Engineering

Mr. Longpré,

RE: Industrial Sewage Compliance Inspection
Clarence-Rockland Landfill Site
Reference Number 6538-ALKHEB

On April 20, 2017, I completed a Industrial Sewage Compliance Inspection at the Clarence-Rockland (Bourget) Landfill Site. The findings of this inspection are detailed in the attached report.

The City is required to take action to address the compliance issues identified in the inspection. Please refer to Section 5.0 of the inspection report and address the action items within the timeframes provided.

Your understanding and anticipated cooperation are appreciated. Should you have any questions or comments or wish to meet to discuss any of the issues identified, please feel free to call me at 613-933-7404 or e-mail me at melissa.lee2@ontario.ca.

Yours truly,

A handwritten signature in black ink on a yellow background, reading "Melissa Lee".

Melissa Lee
Senior Environmental Officer
Cornwall Area Office

File Storage Number: SI RU CR C4 410



Industrial Sewage Inspection Report

| | | | |
|---------------------------------|--|--------------------------------|--|
| Client: | The Corporation of the City of Clarence-Rockland Mailing Address: 1560 Laurier St P.O. Box 909, Clarence-Rockland, Ontario, Canada, K4K 1P7 Physical Address: 1560 Laurier St, Clarence-Rockland, City, United Counties of Prescott and Russell, Ontario, Canada, K4K 1P7 Telephone: (613)446-6022, Extension: 2239, FAX: (613)446-1497, email: rcampeau@clarence-rockland.com Client #: 4328-4G5PYT, Client Type: Municipal Government, NAICS: 221310 | | |
| Inspection Site Address: | City of Clarence Rockland Waste Disposal Site Address: Lot: 15, Concession: 4, Geographic Township: CLARENCE, Clarence-Rockland, City, United Counties of Prescott and Russell District Office: Cornwall LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: 45.4652, Longitude: -75.1667 Site #: 7049-5RBRBL | | |
| Contact Name: | Denis Longpré | Title: | Manager of Environment and Water, Infrastructure and Engineering |
| Contact Telephone: | (613)446-6022 ext2299 | Contact Fax: | (613)446-1497 |
| Last Inspection Date: | | | |
| Inspection Start Date: | 2017/04/20 | Inspection Finish Date: | 2017/04/20 |
| Region: | Eastern | | |

1.0 INTRODUCTION

On April 20, 2017, Ontario Ministry of Environment and Climate Change (Ministry) Senior Environmental Officer Melissa Lee, completed a Industrial Sewage Compliance Inspection of The City of Clarence-Rockland (City) Waste Disposal Site (Landfill) stormwater and leachate-impacted groundwater industrial sewage works, located on Lot 15, Concession 4, on the west corner of Lalonde and Labelle Roads in Bourget (Site).

The purpose of the Ministry's Industrial Sewage Compliance Inspection Program is to ensure that facilities that discharge contaminants into the natural environment are in compliance with Ministry legislation and control documents and in conformance with guidelines and standards related to wastewater. Specifically, this includes compliance/conformance with the following documents:

- Environmental Protection Act (EPA);
- Ontario Water Resources Act (OWRA);
- Environmental Compliance Approvals (ECAs);
- Provincial Officer's Orders (POOs) and;
- Procedure B-1-1: Water Management - Guidelines and Procedures of the Ministry of Environment and Energy (The 'Blue Book') and;
- Procedure B-1-5: Deriving Receiving Water Based, Point Source Effluent Requirements for Ontario Waters (The 'Green Book').

The wastewater pond is approved under ECA No. 3362-6D7PL4 (ECA), issued June 24, 2005, to receive surface water and leachate-impacted groundwater. Prior to approval in 2005, the pond discharged at its northeast extent to

Cobb's Lake Creek. Following approval, the outlet was blocked and the contents primarily infiltrate into groundwater. The pond upgrades required for approval also included increasing bank and outlet height to ensure the pond only overflowed when levels reached 50.5 masl.

The pond is located on the landfill site that is approved under ECA No. A471203 (ECA) to accept domestic and commercial solid non-hazardous wastes from within the boundaries of the City of Clarence-Rockland.

This is the first inspection of the sewage works for this site. Denis Longpré, Manager of Environment and Water, Infrastructure and Engineering and Jocelyn Chabot, Environmental Technician, both of the City of Clarence-Rockland, were available during the inspection to provide a Site tour and answer questions. A solid-non hazardous waste disposal site compliance inspection was also completed at the time of the inspection; the results of this inspection are included under separate cover, dated June 30, 2017.

The inspection findings are detailed in Section 4.0 of this report and any actions required are detailed in Section 5.0. The level readings and whether the pond is discharging must be determined by the City of Clarence-Rockland; there is conflicting information contained in recent reports about water levels in the pond that suggest the pond should be discharging, but staff indicate it has not. This must be confirmed by the City as the water quality in the pond exceeds PWQO for many leachate indicator parameters and could be having an impact on surface water in the area if it is discharging; if this is the case, contingency measures may be required to be implemented.

Appendix A: Amended ECA No. 3362-6D7PL4

2.0 INSPECTION OBSERVATION

Facility MEWS (Works) Number:

N/A

Sector Type:

Waste Disposal

Effluent Type:

Landfill Leachate, Storm Water

Receiver Type:

Ground Water

The wastewater treatment pond was designed to promote infiltration of surface water into groundwater, but does have an overflow capability once the pond reaches a critical level (50.5 masl). According to staff, the pond has not overflowed.

Certificate of Approval Number(s):

Yes

C of A Number(s): 3362-6D7PL4

ECA No. 3362-6D7PL4 was issued on June 24, 2005 for an existing on-site pond receiving stormwater and leachate impacted groundwater as well as upgrades to the pond to promote retention and infiltration.

2.1 WASTEWATER TREATMENT PROCESS DESCRIPTION

Surface water reaches the pond by way of on-site ditching and leachate-impacted groundwater enters the pond through groundwater interactions near the pond.

Treatment is provided through retention and natural attenuation; no other mechanical or chemical treatment processes are employed. The pond is very naturalized with well established vegetation on its banks.

The pond approved to discharge to surface water only when water levels exceed 50.5 masl. The receiver is the Cobb's Lake Creek (Ottawa River system). The primary method of effluent disposal is through infiltration into groundwater.

Prior to approval of the pond in 2005, it discharged regularly to Cobb's Lake Creek. Improvements made following the issuance of the ECA included: increasing bank height, narrowing and increasing the height of the outlet drain, plugging other outlets and infilling the receiving ditch for a 80 m stretch, all to promote infiltration over surface water discharge.

2.2 EFFLUENT SUMMARY REPORT

What are the facility's effluent limits based on?

Certificate of Approval/Permit

Does the facility comply with its limits?

No

The ECA sets out surface water monitoring requirements for three sample locations within the pond GS11, GS12 and GS14. As described in the introduction, the Site is also governed by waste disposal site ECA No. A471203; this approval also sets out surface water sampling of the waste water pond as a requirement. Surface water is analysed for a suite of parameters described in the waste ECAs sampling program and in Table 1 of the sewage works ECA. Sample results are compared to Provincial Water Quality Objectives and the established trigger mechanisms. Table 2 of the sewage works ECA establishes trigger concentration for unionized ammonia, boron, iron and total phosphorus for sampling point GS12.

Surface water trigger concentrations are being exceeded in the stations located in the pond. Therefore it is important to determine whether the pond is discharging its contents to surface water to know whether the contingency plan should be implemented. According to the City and as described in the 2016 annual report, there are no discharges from the pond.

City staff indicate that the pond is inspected once annually and again during monitoring completed by their consultants. The 2016 annual report indicates the pond is not discharging.

The pond is approved (and therefore should be designed) to discharge when the water level reaches a height of 50.5 masl and the banks are supposed to be graded to 51 masl. The last staff gauge reading measured the pond level at 51.02 masl in 2015 and then could not be located in 2016. The pond was viewed during the inspection, but did not appear to be overflowing at its banks. The outlet was not viewed at the time of the inspection, as the pond appeared well below the grade of the banks and the City representatives indicated the pond does not discharge.

Based on the above, there appears to be some question regarding the quality of the water level readings or the actual bank and outlet heights. A staff gauge is also missing. Certainty regarding the discharge of the pond is lacking. As such, the City must provide a topographical survey of the pond's bank and outlet heights, install a new or recover an existing staff gauge and implement an inspection program to ensure the City is aware when the pond is discharging. At a minimum, the pond outlet should be inspected when the water levels in the pond reach a critical height, as determined by the plan.

Please refer to Section 5.0 'Actions Required' for more details.

2.3 SEWAGE TREATMENT WORKS CAPACITY ASSESSMENT

| Flow (m ³ /day) | Year 1 2016 | Year 2 | Year 3 |
|---|----------------|--------|--------|
| Average daily flow | 0.00 | 0.00 | 0.00 |
| Maximum daily flow | 0.00 | 0.00 | 0.00 |
| Capacity Design | 0.00 | 0.00 | 0.00 |
| % of capacity (based on average daily flow) | 0.00 | 0.00 | 0.00 |

Table 1 of the ECA requires that water levels in the pond be assessed (using staff gauges).

The 2016 annual monitoring report indicates that three staff gauges have been installed in the wastewater pond since 2005 to measure water levels. In 2015, the only remaining staff gauge was surveyed and the water level was determined to be 51.02 masl. In 2016, none of the staff gauges could be located.

As described in the previous section, a more reliable means of assessing works capacity is required.

2.4 SAMPLING REQUIREMENTS

What are the facility's sampling requirements based on?

Certificate of Approval/Permit

Does the facility meet sampling requirements?

Yes

Sampling requirements are detailed under Condition 4 of the ECA. The results are described in the annual monitoring report, which also details the results of other monitoring required by the waste disposal site ECA No. A471203.

Based on a review of the monitoring data collected in 2016, the City meets all of its surface water sampling requirements. The trigger concentrations described in Table 2 of the ECA are being exceeded, however, since the pond has not been reported to be discharging, the contingency plan has not been implemented as of yet. As described in Section 2.2 of this report, there is a lack of certainty regarding whether the pond discharges as the level readings suggest otherwise. If it is determined that the pond is discharging, implementation of the contingency plan may be required.

A detailed review of the surface and groundwater monitoring program as it relates to the waste disposal site are described in the Solid Non-Hazardous Waste Disposal Site Inspection dated June 30, 2017. Please refer to this report for more details.

2.5 REPORTING REQUIREMENTS**What are the facility's reporting requirements based on?**

Certificate of Approval/Permit

Does the facility meet reporting requirements?

Yes

Condition 7 of the ECA outlines the annual reporting requirements, which are consistent with those prescribed in waste disposal site ECA No 471203. The 2016 annual report was reviewed as part of this inspection and included all of the information required by this condition.

2.6 FLOW MEASUREMENT

Flow measurement is not required by the ECA.

2.7 MINISTRY SAMPLE RESULTS**Were Ministry samples collected during the inspection?**

No

Reason:

The pond was not believed to be discharging to surface water at the time of the inspection.

2.8 FINANCIAL ASSURANCE

Financial assurance is not required for municipally owned sites.

2.9 SPILL PREVENTION AND CONTINGENCY PLANS**Is the facility required to have a Spill Prevention and Contingency Plan (SPCP) as required by Ontario Regulation 224/07?**

No

Has the facility had any spills since the last inspection?

No

Were all the spills reported to the ministry?

N/A

Does the facility's operations or spill history suggest that a SPCP be developed?

No

Comments:

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

There are no previous non-compliance issues related to the sewage works.

4.0 SUMMARY OF INSPECTION FINDINGS

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?

No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment?

Yes

Specifics:

Based on the water level readings reported, the lack of staff gauge readings for 2016 and infrequent observation of the outlet, it could not be confirmed that the pond is not discharging or has not discharged in the recent past, to surface water.

This suggests that either the pond upgrades required in 2005 were not completed to satisfy the ECA, or that level readings are incorrect or that the pond discharges more frequently than has been reported.

Aside from ensuring the pond is constructed in accordance with the ECA (Cond 1(2)), resolution of this matter is important to determine whether it is appropriate to implement the contingency measures as the trigger mechanism concentrations are being exceeded in the pond surface water stations.

The City must submit the documentation described in Section 5.0 'Actions Required' below to confirm the compliance of the construction of the pond with the ECA as well as its status as it relates to the method of wastewater disposal.

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material?

No

Specifics:

Was there any indication of minor administrative non-compliance?

No

Specifics:

5.0 ACTION(S) REQUIRED

1. By no later than September 1, 2017, please provide the undersigned officer with the following:
 - A copy of a topographical survey of the pond showing the bank elevations and the outlet elevation.
 - Confirmation that a staff gauge has been installed and properly surveyed to ensure water levels can be accurately measured in the pond.
 - A description of an inspection program that will be implemented to ensure the City is aware of when the pond is discharging. At a minimum, the pond outlet should be inspected when the water levels in the pond reach a critical height, as determined by the plan.

- A description of any additional measures that are required to be taken to either comply with or amend the ECA (construction of upgrades, correction to ECA of actual bank heights).

6.0 OTHER INSPECTION FINDINGS

7.0 INCIDENT REPORT

Applicable
1406-APEH9A

8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:
Name:
District Office:
Date:
Signature

Melissa Lee
Cornwall Area Office
2017/07/19



REVIEWED BY:
District Supervisor:
Name:
District Office:
Date:

Michael Seguin
Cornwall Area Office
2017/07/21

Signature:



File Storage Number: SI RU CR C4 410

Note:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"

Appendix A: ECA No. 3362-6D7PL4



Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 3362-6D7PL4

The Corporation of the City of Clarence-Rockland
1560 rue Laurier
Rockland, Ontario
K4K 1P7

Site Location: City of Clarence Rockland Waste Disposal Site
Lot 15, Concession 4
City of Clarence-Rockland, United Counties of Prescott and Russell

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

a stormwater and leachate impacted groundwater management facility servicing the Clarence-Rockland Waste Disposal Site, located on Lot 15, Concession 4, United Counties of Prescott and Russell, consisting of:

- one (1) existing dug-out borrow pit (pond) serving as a natural attenuation facility for stormwater runoff and leachate impacted groundwater, which is approximately 450 m long and 50 m to 100 m wide with a maximum depth of 2.5 m and a total surface area of 3.3 ha, receiving stormwater runoff from a 19.3 ha drainage area, providing a total storage capacity of 40,000 m³ at the current discharge elevation of 49.5 m, located at the northeast side of the landfill site footprint, discharging to Cobbs Lake Creek which eventually discharges to Ottawa River;
- upgrades to the east bank of the pond to raise the bank elevation to 51.0 m and the pond outlet elevation to 50.5 m increasing the maximum storage capacity of the pond to 63,175 m³;
- plugging the pond's east bank drainage outlets and infilling of an approximately 80 m long ditch immediately downstream of the pond outlet to promote infiltration of pond contents to groundwater;
- including all associated controls and appurtenances.

all in accordance with Application for Approval of Municipal and Private Sewage Works submitted by The Corporation of the City of Clarence-Rockland dated April 13, 2005, and drawings and design brief prepared by Stantec Consulting Ltd., Ottawa, Ontario.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

“*Act* ” means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"*Certificate* " means this entire certificate of approval document, issued in accordance with Section 53 of the *Act* , and includes any schedules;

"*Director* " means any *Ministry* employee appointed by the Minister pursuant to section 5 of the *Act* ;

"*District Manager* " means the District Manager of the Kingston District Office of the Ministry;

"*Ministry* " means the Ontario Ministry of the Environment;

"*Owner* " means The Corporation of the City of Clarence-Rockland and includes its successors and assignees;

“*Previous Works* ” means those portions of the sewage works previously constructed and approved under a certificate of approval;

“*Proposed Works* ” means the sewage works described in the *Owner* 's application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate* ;

"*Regional Director* " means the Regional Director of the Eastern Region of the Ministry;

"*Works* " means the sewage works described in the *Owner* 's application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate* and includes both *Previous Works* and *Proposed Works* .

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

- (1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate* , the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate* .

- (3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate* , the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.
- (4) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.
- (5) The requirements of this *Certificate* are severable. If any requirement of this *Certificate* , or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

2. EXPIRY OF APPROVAL

The approval issued by this *Certificate* will cease to apply to those parts of the *Works* which have not been constructed within five (5) years of the issuance date of this *Certificate* .

3. CHANGE OF OWNER

- (1) The *Owner* shall notify the *District Manager* and the *Director* , in writing, of any of the following changes within 30 days of the change occurring:
 - (a) change of *Owner* ;
 - (b) change of address of the *Owner* ;
 - (c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager* ;
 - (d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C 39 shall be included in the notification to the *District Manager* ;
- (2) In the event of any change in ownership of the *Works* , other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate* , and a copy of such notice shall be forwarded to the *District Manager* and the *Director* .

4. SURFACE WATER MONITORING

- (1) The *Owner* shall carry out the following surface water monitoring program. Surface water grab samples shall be collected during spring (April/May), Summer (August), and Fall (November) from the designated sampling locations and shall be analyzed for the parameters listed in Table 1.

| Table 1 - Surface Water Monitoring Sampling Locations: GS11, GS12, GS14 | | |
|--|----------------------|---------------------------------------|
| Parameter | | Field Monitoring Parameter |
| Calcium | Silver | Conductivity (Field) |
| Magnesium | Strontium | pH (Field) |
| Sodium | Sulphur | Temperature |
| Potassium | Thallium | Dissolved Oxygen |
| Aluminum | Titanium | Water Levels*** |
| Barium | Vanadium | |
| Beryllium | Zinc | |
| Boron | Alkalinity | |
| Cadmium | BOD5 | |
| Chromium | TDS | |
| Cobalt | Chloride | |
| Copper | Nitrate | |
| Iron | Nitrite | |
| Lead | Sulphate | |
| Manganese | TKN | |
| Mercury | Ammonia | |
| Molybdenum | COD | |
| Nickel | DOC | |
| Total Phosphorus | Phenols | |
| Silicon | Hardness* | |
| | Un-ionized Ammonia** | |

- Note:**
- * Hardness - calculated from laboratory analyses results of calcium and manganese
 - ** Un-ionized Ammonia - calculated from laboratory analyses results for ammonia and field measurements for pH and temperature.
 - *** Water levels shall be measured at staff gauges installed for the designated sampling points.

- (2) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the surface water monitoring activities

required by subsection (1)

5. GROUNDWATER MONITORING

- (1) The *Owner* shall undertake groundwater monitoring in accordance with Conditions 46 (a) and 46 (c) of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time.
- (2) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the groundwater monitoring activities required by subsection (1)

6. OPERATIONS AND MAINTENANCE

- (1) The *Owner* shall undertake an inspection of the condition of the stormwater management facility, at least once a year, and undertake any necessary cleaning and maintenance to prevent the excessive build-up of sediment and/or decaying vegetation.
- (2) The *Owner* shall maintain a logbook to record the results of the stormwater management facility inspections and any cleaning and maintenance operations undertaken and shall keep the logbook at the site or operational office of the *Owner* for inspection by the Ministry.
- (3) The *Owner* shall compare surface water monitoring results obtained from sampling point **GS12** under Condition 4 (1) with the concentrations of the trigger parameters listed in Table 2 to identify any potential leachate impact to surface water discharged from the site to the receiving stream.

| Parameter | Concentration (mg/L) |
|----------------------|-----------------------------|
| Ammonia (un-ionized) | 0.02 |
| Boron | 0.20 |
| Iron | 0.30 |
| Total Phosphorus | 0.05 |

- (4) In the event that a monitoring result for any of the parameters listed in Table 2 exceeds its corresponding trigger concentration, the *Owner* shall immediately initiate the implementation of Condition 53 of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time.
- (5) Surface water trigger parameters and concentrations outlined in Table 2 under subsection

(3) shall be modified from time to time **only** after receiving a written concurrence from the *District Manager* or an approval from the Director designated for the purpose of Section 37 of the *Environmental Protection Act* .

7. REPORTING

- (1) The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.
- (2) The *Owner* shall prepare, and submit to the *District Manager* , an annual performance report as a separate section of the annual report required under Condition 63 of the Provisional Certificate of Approval Waste Disposal Site Number A471203 Notice No. 1 issued on October 18, 2001 as amended from time to time. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:
 - (a) a summary and interpretation of all surface water monitoring data and comparison of results to the trigger concentrations outlined in Table 2 under Condition 6(3), including an overview of the success and adequacy of the *Works* .
 - (b) a description of any operating problems encountered and corrective actions taken;
 - (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works* ;
 - (d) any other information the *District Manager* requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the owners their responsibility to notify any person they authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate* .
2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware

of the *Certificate* and continue to operate the *Works* in compliance with it.

4. Condition 4 and 5 are included to enable the *Owner* to evaluate and demonstrate the performance of the *Works*, on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives specified in the *Certificate* and that the *Works* does not cause any impairment to the receiving watercourse.
5. Condition 6 is included to require that the *Works* be properly operated, maintained, and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
6. Condition 7 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

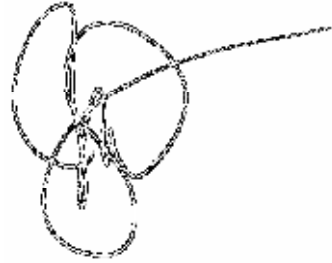
AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 24th day of June, 2005

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Mohamed Dhalla, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

SH/

c: District Manager, MOE Cornwall
Gerry Lalonde, Stantec Consulting Limited



Solid Non-Hazardous Waste Disposal Site Inspection Report

| | | | |
|---------------------------------|--|--------------------------------|--|
| Client: | The Corporation of the City of Clarence-Rockland Mailing Address: 1560 Laurier St P.O. Box 909, Clarence-Rockland, Ontario, Canada, K4K 1P7 Physical Address: 1560 Laurier St, Clarence-Rockland, City, United Counties of Prescott and Russell, Ontario, Canada, K4K 1P7 Telephone: (613)446-6022, Extension: 2239, FAX: (613)446-1497, email: rcampeau@clarence-rockland.com Client #: 4328-4G5PYT, Client Type: Municipal Government, NAICS: 221310 | | |
| Inspection Site Address: | City of Clarence Rockland Waste Disposal Site Address: Lot: 15, Concession: 4, Geographic Township: CLARENCE, Clarence-Rockland, City, United Counties of Prescott and Russell District Office: Cornwall LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: 45.4652, Longitude: -75.1667 Site #: 7049-5RBRBL | | |
| Contact Name: | Denis Longpre | Title: | Manager of Environment and Water, Infrastructure and Engineering |
| Contact Telephone: | (613)446-6022 ext 2299 | Contact Fax: | (613)446-1497 |
| Last Inspection Date: | 2014/07/16 | | |
| Inspection Start Date: | 2017/04/20 | Inspection Finish Date: | 2017/04/20 |
| Region: | Eastern | | |

1.0 INTRODUCTION

On April 20, 2017, Ontario Ministry of Environment and Climate Change (Ministry) Senior Environmental Officer Melissa Lee, completed a Solid Non-Hazardous Waste Disposal Site Compliance Inspection of The City of Clarence-Rockland (City) Waste Disposal Site (Landfill), located on Lot 15, Concession 4, on the west corner of Lalonde and Labelle Roads in Bourget (Site). The Site is also known as the Bourget Landfill.

The purpose of the Ministry's solid non-hazardous waste disposal site inspection program is to ensure compliance with Ministry legislation and control documents, and are in conformance with policy and guidelines pertinent to active landfill sites. Specifically, this includes compliance with:

- Environmental Protection Act R.S.O. 1990 c. E.19 (EPA)
- Ontario Water Resources Act R.R.O. 1990 c. O.40 (OWRA)
- R.R.O. 1990 Regulation 347 "General Waste Management" (Reg. 347)
- Ontario Regulation 232/98 "Landfilling Sites" (O. Reg. 232/98)
- Environmental Compliance Approvals (ECAs)
- Orders (Provincial Officer's Orders and/or Director's Orders).
- Guideline B-7: Incorporation of the Reasonable Use Concept in Ministry Groundwater Management Activities

The Landfill accepts domestic and commercial solid non-hazardous wastes from within the boundaries of the City of Clarence-Rockland, including all municipal curbside pick-up. The Landfill is open to the public from 8:30 am - 5:00 pm

on Friday and Saturday and is also open to permit-holding contractors Monday to Thursday from 9:00 am - 10:00 am and 2:00 pm and 3:00 pm. The household hazardous waste depot located at the Landfill is open during the summer (April - October) during regular operating hours. The City also holds the occasional 'Free Day' when residents can bring their wastes to the landfill without any fee.

ECA No. A471203 (ECA) governs the waste disposal site. It permits solid non-hazardous waste (including asbestos, dewatered sewage sludge and contaminated soils as defined under Reg. 347) to be landfilled at the Site under specific conditions. The Ministry requires the site be operated, maintained and monitored in accordance with the ECA and related legislation to ensure environmental protection.

The inspection consisted of a review of the latest environmental monitoring program results and related reviews completed by Ministry technical staff, incidents reported since the last inspection and compliance with the current approvals for the Site as well as a physical site inspection to observe current site conditions and review records. The physical inspection included the following areas: the entrance and office building, the east side and top of the waste mound including the working face and material segregation areas, the stormwater management facility and snow disposal area.

Denis Longpré, Manager of Environment and Water, Infrastructure and Engineering and Jocelyn Chabot, Environmental Technician, both of the City of Clarence-Rockland, were available during the inspection to provide a Site tour and answer questions.

The inspection findings are detailed in Section 4.0 of this report and any actions required are detailed in Section 5.0. Overall, the Site appears to be having some impact on surrounding groundwater and surface water features which require some action on the part of the City. Of immediate concern is the relocation of the snow disposal area to another site as it is currently operating unapproved and may be contributing to off-site impacts. The City must also initiate the process of acquiring lands/groundwater rights to the west to resolve non-compliance with Guideline B-7.

Appendix A: Amended ECA No. A471203.

Appendix B: Ministry's Technical Support Section surface water unit comments on the 2012, 2013, 2014 and 2015 Annual Operations Monitoring Reports, dated August 26, 2016.

Appendix C: Ministry's Technical Support Section groundwater unit comments on the 2016 annual monitoring report, dated May 4, 2017.

Appendix D: E-mail dated April 13, 2017 sent to WSP Engineering regarding requirement to amend ECA No. A471203.

2.0 INSPECTION OBSERVATIONS

Certificate of Approval Number(s):

Amended Waste ECA No. A471203 issued on October 21, 2009 revokes and replaces all previous ECAs.

Notice No. 1 was issued on September 9, 2015 approving site plan changes from a proposed landfill entrance reconfiguration. The proposed changes would impact the stormwater facility (additional flows) and therefore Condition 2 (17) was included in ECA No. A471203 to amend the stormwater and leachate-impacted groundwater industrial sewage works ECA No. 3362-6D7PL4 with the updated site and drainage plans.

Notice No. 2 was issued on August 19, 2016 to extend a deadline for the submission of an application to amend ECA No. 3362-6D7PL4.

In 2017, after two rounds of tenders to undertake the site reconfiguration, the City decided to simplify the plan such that there was no new entrance to the site, there was no net increase in impervious surfaces and all buildings proposed to be constructed were only to replace existing ones with the exception of a scale and scale house. As such, it was determined in a meeting held with the City's consultants (WSP) and the undersigned officer that an amendment to ECA No. 3362-6D7PL4 would not be required.

An amendment to ECA No. A471203 is however required to a) update site plan changes per current reconfiguration plan b) remove Condition 2(17) requiring an amendment to ECA No. 3362-6D7PL4 (industrial sewage works). See the e-mail dated April 13, 2017 sent to WSP outlining this requirement, included as Appendix D to this report.

Please refer to Section 5.0 'Actions Required' for more details.

2.1 FINANCIAL ASSURANCE:

Specifics:

Financial assurance is not required for municipally-owned sites.

2.2 APPROVED AREA OF THE SITE:

Specifics:

The total Site area (property size) is 50 hectares and the approved landfilling area is 12 hectares. The landfilling area is clearly demarcated at the Site. According to Mr. Longpré, wastes were previously placed outside of approved elevation contours in Cell 1. Landfilling is currently active in cell 3; in 2018, landfilling will resume in Cell 1 and contours will be corrected.

2.3 APPROVED CAPACITY:

Specifics:

In 2001, the Ministry issued amended ECA No. A471203 approving a landfill expansion by an additional 740,000 cubic metres.

Based on the 2016 Annual Operations Monitoring Report prepared by Jp2G on behalf of the City, the current capacity based on rates of filling is 567,000 cubic metres or an additional 40 years.

2.4 ACCESS CONTROL:

Specifics:

Access to the Site is controlled by a locked gate and an attendant when the Landfill is open to the public. There is also a sign erected at the entrance and at regular intervals on the fence along the road warning against trespassing.

Fencing secures much of the Site where the public might attempt to access (along Lalonde Road). Additional fencing is required to complete the perimeter of the site; this work is ongoing.

2.5 COVER MATERIAL:

Specifics:

Interim cover material currently consists of sand and wood chips (wood chips are primarily received from the Waste Transfer Station on Industrielle Street - ECA No. 1998-6QQ13K). According to the 2016 annual operations report, final cover in the active cell (3) will likely be placed in 2018 (when they move back into Cell 1).

In May 2017, heavy rainfall caused major flooding in the area impacting many properties along the Ottawa River, upstream tributaries and low lying areas. Following the flooding event, 130,000 sandbags were collected from impacted properties (mostly residential). The used sandbags were taken to the landfill and sand will be used as cover material.

A tree planting initiative was also recently undertaken by the City that involved the planting of approximately 320 hybrid poplar trees on the landfill contours (260 southeast and 60 west of the landfill footprint) to reduce exposure to precipitation, reduce runoff and erosion, intercept litter and treat leachate.

2.6 WASTE BURNING:

Specifics:

The burning of waste is prohibited at the landfill under Condition 2 (6) of the ECA. Wastes are not burned at the landfill Site.

2.7 GROUNDWATER/SURFACEWATER IMPACT:

Specifics:

Surface Water

Local surface water drainage is to the north along the east of the Site via an on-site ditch that was realigned in 2009 around the current snow stockpile area. It converges with an existing roadside ditch (Labelle Road) which flows north into Cobb's Lake Creek, which in turn flows south/southeast into the South Nation River about 10 km downstream.

The landfill site also has an approved on-site wastewater pond (ECA No. 3362-6D7PL4) that receives surface water and leachate-impacted groundwater. Prior to approval in 2005, the pond also discharged to the northeast to Cobb's Lake Creek. The outlet has since been blocked and the contents infiltrate passively into groundwater.

The Ministry's Technical Support Section surface water unit reviewed and provided comments dated August 26, 2016 on the 2012, 2013, 2014 and 2015 Annual Operations Monitoring Reports. It is relevant to note that these annual reports were prepared by Stantec Consulting Ltd.; the City of Clarence-Rockland has since retained (effective 2016) Jp2G Consultants Inc. to carry out monitoring and reporting requirements of the ECA.

The surface water unit's comments indicate that there are a number of indicators that suggest leachate-impacted surface water is moving away from the landfill site via the east (realigned) ditch. This may be exacerbated/accelerated by the snow melt as the ditch is now realigned downgradient of the snow disposal area. When the ditch was realigned, the surface water monitoring stations that were being assessed in the previous ditch (GS20 and GS21) were lost. The surface water unit recommends they be reinstated. Jp2G also makes this recommendation in the 2016 annual monitoring report.

The surface water unit also proposed some changes to the surface water monitoring program's trigger mechanisms. Based on the current program, trigger concentration exceedances result in resampling at S2 rather than in all background locations. This may result in misrepresentation of actual impacts from the landfill site. As such, background stations GS17 and GS6 should also be assessed in a resample when triggered. Jp2G concurs with this recommendation in the 2016 annual performance report.

A copy of the Ministry's Technical Support Section surface water unit comments on the 2012, 2013, 2014 and 2015 Annual Operations Monitoring Reports, dated August 26, 2016 is included as Appendix B of this report.

Please refer to Section 5.0 'Actions Required' for more details.

Groundwater

Leachate-impacted groundwater appears to travel in two directions (east and west) due to a divide which transects the landfill site. There are reasonable use policy concentration exceedances reported for groundwater in both of these directions, however, the exceedances to the east appear to be related to other sources such as road de-icing. This determination is made by Jp2G in its 2016 annual monitoring report and is corroborated by the Ministry's Technical Support Section's groundwater unit's comments on the report dated May 4, 2017. The reasonable use policy concentration exceedances to the west are however more obviously caused by the landfill. As such, both Jp2G and the Ministry's technical support section agree that efforts should be taken to resolve reasonable use non-compliance by acquiring lands or groundwater rights to the west. This is an action required of this inspection.

As described in the Ministry's Technical Support Section groundwater unit comments on the 2016 annual monitoring report, dated May 4, 2017, the reviewer indicates that wells 18-92, G26-94 and G29-97 are to be maintained as compliance trigger wells to assess groundwater as part of the contingency plan in addition to the existing wells G37-01, G12-92, G42-10 and G43-11 for a total of seven (7) compliance monitoring wells.

A copy of the Ministry's Technical Support Section groundwater unit comments on the 2016 annual monitoring report, dated May 4, 2017 are attached to this report as Appendix C.

Please refer to Section 5.0 'Actions Required' of this report for more details.

Snow disposal

The landfill has served as a snow disposal site for a number of years (since at least 2002). Snow is currently stockpiled in the southwest corner of the Site (near the intersection of Labelle and Lalonde Roads).

In 2010, the City of Clarence-Rockland undertook an Environmental Assessment (EA) to evaluate possible locations for a municipally-run snow disposal site. At the time, snow was already being disposed of at the landfill and the City was looking for a second location for snow generated in the urban area. The EA was submitted to the Ministry who provided general comments on the technical aspects of the sites being considered. The Ministry's position was that the landfill site was not a suitable location in terms of the possible influence that snow melt may have on the migration of leachate-impacted groundwater off-site. Following the 2010 EA, the City settled on a snow disposal site in the industrial park on leased land, however this lease expires in 2017. Snow disposal at the landfill site also continued after the EA was completed.

Snow disposal sites may be exempt from requiring an ECA (for an industrial sewage works under Section 53 of the OWRA) if they meet the criteria set out under Section 3(2) of Ontario Regulation 525/98. A snow disposal site located on a landfill site is however not exempt under this section as a landfill site is considered industrial land. The City

of Clarence-Rockland did not seek an ECA for the landfill snow disposal site and it is unlikely an ECA would have been issued based on opposition from the Ministry's technical support section regarding the siting on the landfill site. As such, the current snow disposal site is being used without approval and without support from the Ministry. Further, in both the Ministry's technical support section surface water unit August 26, 2016 comments and Jp2G's 2016 annual monitoring report, it is identified that the snow stockpile is likely accelerating the migration of the leachate plume off-site and impacting surface water receivers. There is also potential for groundwater impacts. The City must relocate the snow disposal site for the 2017-2018 season (i.e. no longer use site for snow disposal).

Please refer to Section 5.0 'Actions Required' for more details.

Other ECA Conditions

Condition 8 (9) of the ECA requires that temporary berms and ditches be constructed around the active waste disposal area, as necessary, to prevent extraneous surface water from contacting the active working face.

Based on the findings of this inspection and interviews with City staff, berms and ditches are not constructed on site for this purpose. Please commence this practice in landfilling operations.

Please refer to Section 5.0 'Actions Required' for more details.

2.8 LEACHATE CONTROL SYSTEM:

Specifics:

A vertical cut off wall is located south of the landfilling area redirects leachate-impacted groundwater away from the northern property line (at Lalonde Road).

A wastewater pond located on the landfill site, east of waste filling area, passively collects stormwater and some leachate-impacted groundwater. The pond is approved under ECA No. 3362-6D7PL4.

Compliance with the wastewater pond ECA was evaluated during this inspection; the findings are detailed in a separate Industrial Sewage Works inspection report.

2.9 METHANE GAS CONTROL SYSTEM:

Specifics:

There is no methane gas control system at the site. Gas vents passively from the landfill and monitors are installed inside buildings to ensure it does not collect in confined areas.

2.10 OTHER WASTES:

Specifics:

Diverted wastes

The landfill accepts wastes other than solid non-hazardous domestic and commercial wastes that are segregated for off-site management rather than landfilled:

- refrigeration equipment (refrigerants removed by certified technician)
- metal
- wood
- leaf and yard waste (most of it collected at the transfer station located at
- waste electronics
- concrete
- tires

These materials are segregated at the surface of the landfilling area (in boxes or designated areas, away from working face) and removed for off-site recycling/disposal, as described in the annual design and operations manual. The only exception is chipped wood which is primarily brought to the landfill site from the leaf and yard waste transfer station owned by the City in Rockland (ECA No. 1998-6QQ13K); chipped wood is mixed with sand and used as cover material at the landfill.

Household hazardous wastes

A household hazardous waste depot is also located at the entrance to the landfill. It is open to the public for regular operating hours between April and October each year. All wastes are removed by Drain-All (approved hazardous waste hauler). The household hazardous waste depot is a gated, secured area with various drums for the collection of liquid wastes as well as a refurbished sea can equipped with secondary containment, for smaller items such as paint cans. There are no records of issues with the function of this depot.

Currently, site changes are underway (construction of a new entrance, installation of a scale and new buildings) that also involves the construction of a new household hazardous waste depot.

Wastes generated during May 2017 flooding event

As a result of the May 2017 flooding event, the City held special collection days in May and June 2017 for household non-hazardous and demolition wastes. Residents were asked to bring household hazardous wastes directly to the landfill site for disposal at their depot. There were also permits issued to any residents who wished to bring wastes immediately to the landfill site during regular operating hours.

As described in the section above about cover material, a total of 130,000 sandbags used in the flooded areas were collected by the City and taken to the landfill site for use in cover material.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

Previous inspection report (2014)

The previous inspection report identified the following non-compliance issues/environmental concerns:

- landfill gas odours on-site;
- leachate breakout in the west discharge ditch and;
- mixed wastes and soil (from excavation of the former Notre Dame Landfill) were being placed at the top of the mound for future screening to recover some soil.

Cell 2 was capped and the Ministry provided guidance in the inspection report to review landfill operations to reduce landfill leachate runoff and advised of the Ministry's expectation to ensure wastes mixed with soil are incorporated into the landfill and capped by December of 2014.

These matters were not identified as issues in the current inspection with the exception of a leachate breakout found during the site visit on the east side of the mound, almost at ground level. It was corrected by the City in the weeks following the inspection with the excavation of the area, placement of bentonite mats and backfilling. The matter is considered resolved.

Incidents (2014-2017)

Three fire incidents at the landfill site were reported in the last two years. On all occasions, the fires did not result in significant or off-site environmental impact. The source of the fires were ignitable wastes unseen by operator in the domestic wastes accepted at the site (in garbage bags) and on one occasion, it is believed the wood chip pile may have reached a high temperature and combusted.

Following the first fire incident (May 2015), efforts were made to improve emergency response and report the incidents in accordance with the ECA and the EPA. The details to be included in an emergency response procedure are not specifically listed in the ECA, however, the ECA does require personnel to be trained in emergency response procedures and a report must be submitted to the ministry following an emergency situation at the landfill site, such as a fire. A landfill site emergency plan was developed in November 2015 and submitted to the Ministry. It details the actions that will be taken under various emergencies; with respect to fires, there are details to promptly report to the Ministry and allow for the incident to immediately be taken over by the fire department (as opposed to having on-site staff managing fire incidents). This matter is considered addressed.

4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?

No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?

No

Specifics:

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material ?

Yes

Specifics:

The City is using an area of the landfill site for snow disposal without approval. Based on information contained in the 2016 annual monitoring report and recent Ministry technical support section comments received by the undersigned officer, the use of the snow disposal may be contributing to off-site environmental impacts. The City must relocate the snow disposal site by the 2017-2018 season.

The current surface water monitoring program lacks precision as the surface water condition to the east is not well described. Since the realignment of the ditch in 2009, sampling points downgradient of the landfilling area were lost. The City's consultant and the Ministry agree that eliminated surface water sampling points GS20 and GS21 should be reinstated.

The surface water monitoring program fails to accurately identify the source of surface water trigger concentration exceedances by only resampling one background surface water station when an exceedance is observed. As such, the City's consultant and the Ministry agree that when a surface water trigger concentration exceedance is observed, resampling should occur in surface water background monitoring stations GS17 and GS6, in addition to S2 which is the only background station currently part of the program.

Reasonable use criteria exceedances are consistently being observed west of the landfill site at the property boundary. As such, the City is in non-compliance with the reasonable use policy and must take steps to resolve this matter by extending the contaminant attenuation zone. Lands or groundwater rights must be acquired and registered on title.

Based on comments received by the Ministry technical support section's groundwater unit, the four wells used to assess compliance for contingency purposes are insufficient to properly assess the groundwater condition of the entire site, as it continues to develop. As such, the groundwater monitoring program must monitor the following seven wells for compliance in the trigger mechanism program: 18-92, G26-94, G29-97, G37-01, G12-92, G42-10 and G43-11.

The City has not been installing temporary berms and ditches around the active waste disposal area to prevent extraneous surface water from contacting the working face in accordance with Condition 8 (9) of the ECA. This should be implemented to ensure that the working face is not shedding stormwater that has come into contact with wastes, thereby possibly increasing the contaminant loading on the natural environment.

Was there any indication of minor administrative non-compliance?

Yes

Specifics:


Due to recent site plan changes made resulting from the new landfill entrance reconfiguration, ECA No. A471203 must be amended to a) update site plan and b) remove Condition 2(17) requiring an amendment to ECA No. 3362-6D7PL4 (industrial sewage works).

5.0 ACTION(S) REQUIRED

1. By no later than August 31, 2017, please provide the undersigned officer with a response to this inspection report which details the efforts that will be taken to:
 - amend ECA No. A471203 to a) update site plan changes per current reconfiguration plan and b) remove Condition 2(17) requiring an amendment to ECA No. 3362-6D7PL4 (industrial sewage works).
 - discontinue snow disposal at the landfill site and provide an alternative site locations for the 2017-2018 winter season and beyond.
 - modify the current surface water monitoring program such that a) surface water sampling points GS20 and GS21 are reinstated to track surface water impacts east of the landfill site and b) GS17 and GS6 (in addition to S2) are all assessed in a resample when surface water trigger concentrations are exceeded as part of the contingency plan.
 - extend the contaminant attenuation zone (CAZ) at the west property boundary where reasonable use policy concentration exceedances have consistently been observed.
 - modify the current groundwater monitoring program such that wells 18-92, G26-94 and G29-97 are maintained as compliance trigger wells in addition to wells G37-01, G12-92, G42-10 and G43-11 for a total of seven (7) compliance monitoring wells.
 - install temporary berms and ditches around the active waste disposal area to prevent extraneous surface water from contacting the active working face.

6.0 OTHER INSPECTION FINDINGS

7.0 INCIDENT REPORT

Applicable
2007-ALMQBJ 

8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:

Name: Melissa Lee
District Office: Cornwall Area Office
Date: 2017/06/29
Signature



REVIEWED BY:
District Supervisor:

Name: Michael Seguin
District Office: Cornwall Area Office
Date: 2017/06/30

Signature:



File Storage Number: SI RU CR C4 610

Note:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory

requirements"



VIA email

August 29th, 2017

Mrs. Melissa Lee
Senior Environmental Officer
Ministry of the Environment, Cornwall Area Office
113 Amelia Street
Cornwall ON K6H 3P1

**RE: Solid Non-Hazardous Waste Disposal Site Inspection Report
Clarence-Rockland Landfill Site
Reference Number: 0440-AKURUK**

Madam:

Further to your report dated June 30th, 2017 please find herein our response to address the noted deficiencies in order to bring our facility into compliance as per our ECA #A471203:

5.0 Action(s) Required

1. Amend ECA No. A471203 to:

- a) Update site plan changes per current reconfiguration plan and;**
 - b) Remove condition 2(17) requiring an amendment to ECA No.3362-6D7PL4 (industrial sewage works).**
- i. The amendment to ECA No. A471203 to update site plan changes and remove condition 2(17) requiring an amendment to ECA No.3362-6D7PL4 is currently in progress. The project manager from the firm Colliers Project Manager currently overseeing the project is mandated to complete this amendment.

The application for this amendment has been submitted in the week of August 14th, 2017.

2. Discontinue snow disposal at the landfill site and provide an alternative site locations for the 2017-2018 winter season and beyond.

The City agrees to discontinue the snow disposal at the landfill site and is committed in finding a new location. We would like to meet with you in the next upcoming days to discuss the implementation timelines.

3. Modify the current surface water monitoring program such that:

a) surface water sampling points GS20 and GS21 are reinstated to track surface water impacts east of the landfill site, and;

b) GS17 and GS6 (in addition to S2) are all assessed in a resample when surface water trigger concentrations are exceeded as part of the contingency plan.

1. Reinstatement of surface water sampling points GS20 and GS21 have been recommended by Jp2g and will be implemented with the 2017 fall sampling program. Jp2g have been made aware of the MOECC analysis of the 2012-2015 annual operations reports and annual monitoring reports for groundwater and surface water programs. Resampling of GS17, GS6 and S2 when surface water trigger concentrations are exceeded is already in place and should be reflected in the 2017 annual report if this situation is encountered.

4. Extend the contaminant attenuation zone (CAZ) at the west property boundary where reasonable use policy concentration exceedances have consistently been observed.

1. Almost immediately upon receiving the monitoring report from Jp2g, the City began discussions regarding the recommendation of extending the contamination attenuation zone (CAZ) at the westerly property line. It should be noted that the exact size of land required to be added has not been determined and we are currently not able to proceed with either land purchase or ground contamination rights without this vital information.

Following our dialogue with Jp2g in the weeks following publication of the 2016 annual monitoring report, it has been agreed that sampling will be continue in 2018 for confirmation purposes. As you can appreciate, land acquisition for landfills can be a complex legal matter and publicly sensitive subject.

The next step will be to, using 2017 and previous years sampling data, have Jp2g recommended both the type and size of the additional CAZ required on the west property boundary limit of the landfill site.

5. Modify the current groundwater monitoring program such that wells 18-92, GS26-94 and G29-97 are maintained as compliance trigger wells in addition to wells G37-01, G12-92, G42-10 and G43-11 for a total of seven (7) compliance monitoring wells.

1. Jp2g has been advised to modify the groundwater monitoring program to include all following seven monitoring well as compliance trigger wells: 18-92, GS26-94, G29-97, G37-01, G12-92 and G42-10. This should be effective in the fall 2017 sampling.

6. Install temporary berms and ditches around the active waste disposal area to prevent extraneous surface water from contacting the active working face.

1. The City will construct a berm located at the northern final toe of waste by December 31st 2017.

Denis Longpré
Environment Manager

- c.c. Mr. Dave Darch, P. Eng., Interim-Director, Infrastructure and Planning department, City of Clarence-Rockland
Mr. Jocelyn Chabot, Environmental Technician, City of Clarence-Rockland
Mr. Andrew Buzza, P. Geo., Project Manager, Jp2g Consultants Inc.



MEMORANDUM

26 August 2016

TO: Marc Robert
Senior Environmental Officer
Cornwall Area Office
Eastern Region

FROM: Lauren Forrester
Surface Water Specialist
Technical Support Section
Eastern Region

RE: Clarence-Rockland WDS 2012-2015 Annual Operations Monitoring Reports and
Annual Reports on Groundwater and Surface Water Monitoring Program
Lot 15, Concession IV, Clarence Township
City of Clarence Rockland
ECA No. A471203 and ECA No. 3362-6D7PL4

As requested, I have reviewed the City of Clarence-Rockland 2012, 2013, 2014 and 2015 Annual Operations Monitoring Reports, prepared by Stantec Consulting Ltd.. Interpretation of ground and surface water monitoring results is included as Part B to these reports and is prepared by Golder Associates Ltd. (GAL).

I have also consulted the most recent groundwater and surface water comments provided by this office, as well as the latest compliance inspection report (July 16, 2014). Surface water comments were last provided from this office in a memorandum prepared by Gillian Dagg-Foster, dated November 4, 2010 in review of the 2008 and 2009 reports. Groundwater matters were reviewed in a memorandum prepared by Thomas Guo and Robert Holland dated July 29, 2013. The following comments are provided with respect to surface water concerns.

Background

The Clarence-Rockland Waste Disposal Site (WDS) operates under provisional Environmental Compliance Approval (ECA) No. A471203, last amended August 19, 2016. An on-site pond / wetland for collection of leachate impacted water and stormwater is operated under ECA 3362-6D7PL4, issued June 24, 2005. Notice 2 to that Approval, dated August 19, 2016, requires that an application to amend be submitted by December 30, 2016 to amend the ECA to include the stormwater management works on the site.

Cover material is applied on the fill area on a daily basis. Daily cover is described as a mixture of wood chips, dewatered sludge from the Rockland sewage treatment plant, and sand. Stantec estimates the landfill to have 33 years of remaining service life as of 2015.

Snow disposal was formerly undertaken on the west portion of the site (e.g. in 2005, 2006, 2008, 2009). Establishment of a long-term snow disposal facility at the southwest corner of the property was proposed in 2011, but was not supported by the surface water reviewer (Dagg-Foster, 2012). It appears that the City currently stockpiles snow on the eastern corner of the property, north of the former Brazeau property and that this location has been in use since 2002. The snow pile is located hydraulically downgradient of the landfill area, based on the inferred groundwater flow direction, and surface flow from the snow pile is captured by the realigned ditch, described below.

Based on groundwater elevation data, there appears to be a groundwater divide which traverses the central portion of the site. To the west, leachate impacted groundwater migrates westward towards the stream, which has the potential to be impacted by leachate. The primary path for leachate migration is eastward in overburden, with potentially leachate-impacted groundwater migrating eastward from the fill area and on-site pond towards the snow stockpile area and southeast ditch along Labelle Road. A vertical cut-off wall along the southern boundary is intended to prevent groundwater impacts at that boundary; however, the actual effectiveness is unclear based on the most recent groundwater review (Guo and Holland, 2013).

Local surface water drainage is to the north by way of a stream on the west side of the site and a ditch on the southeast side of the site. The ditch was realigned in 2009 to flow on the south and east (as opposed to west and north) sides of the snow storage area, within the property boundaries. The ditch and stream converge north of the site and flow eastward into Cobbs Lake Creek approximately 1.7 km downstream. Cobbs Lake Creek flows south/southeast to the South Nation River, approximately 10.3 km downstream.

Visual signs of leachate impact to the ditch on the west side of the property were documented in the 2014 compliance inspection. City staff attributed this observation to a lack of interim capping on Cell 2 following the removal of cover from Cell 1 to allow placement of waste in Cell 2. The inspection report also states that leachate was observed in the east drainage ditch, but no further mention is made of the eastern watercourse and I suspect this may have been in reference to the on-site pond or its inflow and not the ditch at the east property boundary.

Leachate has been characterized based on water quality in monitoring well P5B-01. Leachate indicator parameters relevant to surface water receptors have been identified as alkalinity, DOC, TDS, unionized ammonia, hardness, total phosphorus, chloride, sodium, sulphate, boron, conductivity, iron, lead, manganese and sodium. The groundwater reviewer recommended that COD also be included as a leachate indicator for this site.

The site is subject to both groundwater and surface water trigger mechanisms.

Results and Discussion

For 2015, samples were collected from S1 and S2 (west stream), GS6 and GS17 (background, west), and GS11, GS12 and GS15 (on-site pond). No changes have been made to the monitoring program over the past four years (2012-2015). Three monitoring locations in the ditch on the southeast portion of the property were eliminated from the monitoring program following realignment of the ditch.

Background for the west stream (GS6) and background for the ditch (GS17) have both been characterized as having concentrations of total phosphorus, iron and aluminum exceeding the Provincial Water Quality Objectives (PWQO) in the majority of samples. This is not unusual for a surface watercourse, especially in agricultural areas, but the observed concentrations are beyond what would be considered typical. Although the PWQO were occasionally exceeded, the background concentrations for metals (75th percentiles) were below the respective PWQO.

West Stream and Ditch

GAL report that S1 and S2 exhibit seasonal variations, with highest concentrations during the summer when water levels are lowest. This is reasonable. Concentrations of key indicator parameters were reported to be similar at S1, S2, GS6 and GS17, indicating that the western stream is not measurably impacted by leachate. Based on an independent review of the submitted data, I agree.

Concentrations of most key indicator parameters at SW2 are similar to GS6 and GS17. Only iron, total phosphorus and dissolved aluminum consistently exceed the PWQO at SW2, with concentrations similar to upstream. Some key indicator parameters were high in November 2014 at both at S2 and to a lesser extent GS17 compared to historical data, but have returned to normal range in 2015 (e.g. many metals, total phosphorus, nitrogen compounds). This should be monitored carefully moving forward.

On-site Pond

GAL report that the on-site pond's outflow was blocked as part of construction activities in 2005 to prevent surface water flow off-site. The pond is intended to dilute leachate-impacted groundwater prior to discharge via groundwater flow east of the pond. Stantec report that an inspection of the wetland in the summer of 2015 revealed abundant emergent vegetation in each of the five rows of the wetland.

GS11, GS12, GS15 in the on-site pond are interpreted to be leachate impacted. At GS11 and GS12, GAL report elevated concentrations of almost all leachate indicator parameters and a long-term increasing trend up to 2011, followed by stable concentrations of many parameters up to 2014, and a possible decrease reported in 2015. I concur.

Based on independent review of sampling data from GS11 since 2012, the Canadian Water Quality Guideline (CWQG) for chloride was exceeded in 80% of samples (n=10, 97-320 mg/L, average 222 mg/L) and the CWQG for boron was exceeded in 82% of samples (n=11, 0.7-2.6 mg/L, average 2.1 mg/L). Unionized ammonia exceeded the PWQO in 64% of samples (n=11, 0.6-176 µg/L, average 74 µg/L). Copper, cobalt, iron, vanadium, phenolics, total phosphorus and iron are also elevated compared to the PWQO. Leachate parameters were elevated, but to a lesser extent, at GS12 and GS15. Based on the reported water quality, it remains important that there be no surface water outflow from the pond.

GAL report that the anticipated dilution of leachate impacted groundwater is not occurring and that some surface water flowing to the pond is more impacted than groundwater. GAL further recommends that (groundwater monitoring) results at the eastern boundary will have to be monitored closely to observe if there is potential for exceedances not predicted by the model. I defer to the groundwater reviewer on matters related to groundwater flow from the on-site pond.

Southeast Watercourse

No surface water quality monitoring is undertaken at the southeastern/eastern property boundary; however, groundwater monitoring has revealed possible non-compliance with Ministry of the Environment and Climate Change (MOECC) guideline B-7. Golder reports that the source of the leachate indicator parameters at that boundary may be associated with geological conditions and/or salt-impacted melt-water from the snow stockpile area in the southeastern portion of the property.

The location of the snow stockpile in the southeast corner of the site, immediately adjacent to the realigned ditch, is a concern with respect to surface water. Given that the location of the snow disposal area is down-gradient of the waste mound (according to the interpreted groundwater flow direction), the main concern with respect to leachate impacts is the potential for the acceleration of movement of leachate-impacted groundwater east of the on-site pond and potential to mask leachate-related effects along the southeastern boundary. Contaminants known to be associated with snow removed from roadways include dissolved salts, oil, heavy metals, oxygen demanding organics and particulates. With consideration for the reported failure to achieve the anticipated dilution in the on-site pond (described above) and potential for previously unanticipated leachate impacts at the southeast property boundary, it is my opinion that monitoring of surface water in the southeast ditch / watercourse is again justified.

I recommend that surface water monitoring be reinstated at the former GS21 (or preferably on the upstream side of Lalonde Road in the Lepage Municipal Drain which flows onto the site) and GS20 (at the property boundary, downstream of the snow storage area and prior to the confluence with the west branch of the Rozon-Seguín Municipal Drain). These sampling locations should be sampled consistent with the current program for surveillance stations (e.g. sampled three times per year for the comprehensive list of leachate indicator parameters and field measurement of temperature, pH, conductivity, DO and flow rate at the time of sampling).

If impacts are identified at GS20, it may be necessary to establish additional sampling locations to better understand the significance of those impacts to the drain (e.g. upstream of Lalonde Road in the West Branch of the Rozon Seguin Municipal Drain and downstream of the confluence of the on-site ditch with the drain / upstream of agricultural areas (120-150 metres downstream from GS20)).

Trigger Assessment

With respect to the on-site pond, the requirement to compare surface water results to trigger concentrations given within ECA 3362-6D7PL4 was removed as per correspondence with the MOECC on September 2, 2008 based on the absence of discharge from the pond. The surface water trigger mechanism has been replaced by a groundwater trigger mechanism for monitors east of the pond.

The amended provisional ECA A471203 refers to the surface water trigger mechanism described in Appendix A of the 2001 Annual Report prepared by Golder Associates (2002). Following an exhaustive search of the files in this office, a copy of that report could not be located. It would be helpful if future annual reports included a fulsome description of the current trigger mechanism / contingency plan for the Clarence-Rockland WDS.

To the best of my understanding and based on available information, the trigger mechanism for the Clarence-Rockland WDS consists of an exceedance of the 75th percentile concentration for existing background or PWQO, whichever is greater, at sampling stations SW2 (west boundary) or GS20 (east boundary) for identified site-specific leachate indicator parameters with established PWQO. If resampling confirms that the trigger concentration was exceeded, contingency measures would be triggered. Sampling station GS20 was eliminated following realignment of the ditch on the southeast boundary.

Revised trigger concentrations for boron, iron, total phosphorus and unionized ammonia were calculated by GAL based on data from GS6. These were confirmed through independent review of the submitted data. For 2015, trigger values were identified as 0.2 mg/L for boron (PWQO), 1.50 mg/L for iron (75th percentile), 0.08 mg/L for TP (75th percentile) and 0.02 mg/L for unionized ammonia (PWQO). I recommend that chloride and sulphate also be considered as potential trigger parameters, based on their respective guidelines (CWQG of 120 mg/L for chloride and the hardness-specific BC Ministry of the Environment guideline for sulphate, which have been adopted by the MOECC for the purpose of surface water impact assessment).

Trigger concentrations calculated by GAL were based on data from GS6 only (as opposed to both GS6 and GS17). This represents a conservative approach, as GS17 has been characterized as having higher total dissolved solids, chloride, sodium, phosphorus and zinc. This may result in more frequent and possibly unnecessary triggering of re-sampling and/or contingency measures. Conditions at both background monitoring stations should be carefully considered in evaluating the presence or absence of leachate impacts at S1 and S2.

GAL report that the stream to the west of the fill area is not impacted by landfill leachate at this time. I agree. Iron and total phosphorus each exceed the trigger concentration on several occasions in recent years, but this has typically coincided with elevated concentrations upstream (GS17 and/or GS6). I note that background samples are not typically collected when a resampling is undertaken. Any resampling at S2 as a result of a trigger exceedance should be accompanied by sampling at both background stations to allow the determination of whether the trigger was the result of leachate or upstream sources.

Conclusions and Recommendations

- The watercourse on the west of the property is not measurably impacted by leachate at this time.
- The on-site pond is leachate-impacted, with elevated concentrations of almost all leachate indicator parameters, many of which exceed relevant water quality guidelines, and with increasing trends up to 2011. Concentrations of many parameters appear to have now stabilized, but should be carefully monitored moving forward.
- No surface water monitoring in the southeastern/eastern watercourse was undertaken 2012-2015.

- Stantec and GAL recommend that surface water monitoring continue, with no changes proposed to the surface water monitoring program. As described above, I recommend that GS20 and GS21 be reinstated as Surveillance Surface Water Stations. Additional sampling locations may be required in the future if impacts are identified. This is based on the observed leachate impacts in the on-site pond, reports that anticipated dilution of leachate is not occurring in the on-site pond and possible non-compliance with MOECC guideline B-7 at the eastern property boundary.
- Given the numerous PWQO exceedences in both the inflow to the on-site pond and the ponded water itself, it is important that there continue to be no outflow from the pond to the neighboring watercourse over the long term.
- Stantec recommends that the stormwater management assessment stipulated by Condition 2(17) of the ECA 3362-6D7PL4 be completed and submit application to amend ECA accordingly.
- It would be helpful if future annual reports included a fulsome description of the current trigger mechanism / contingency plan for the Clarence-Rockland WDS.
- Trigger concentrations are calculated using data from GS6 only (as opposed to both GS6 and GS17). This represents a conservative approach, as GS17 has been characterized as having higher TDS, chloride, sodium, phosphorus and zinc. This may result in more frequent and possibly unnecessary triggering of re-sampling and/or contingency measures. Conditions at both background monitoring stations should be carefully considered in evaluating the presence or absence of leachate impacts at S1 and S2.
- Any resampling at S2 as a result of a trigger exceedance should be accompanied by sampling at both background stations to allow the determination of whether the trigger was the result of leachate or upstream sources.
- Surface water results should be compared to CWQG for nitrate, nitrite and chloride. The hardness-specific BC guideline for sulphate should also be consulted.

If you have any questions about these comments, I would be happy to discuss them with you.

“Original Signed By”

Lauren Forrester, M.Sc.
LF/sh

ec: Peter Taylor, Technical Support Section Manager
Greg Faaren, Water Resources Unit Supervisor
Robert Holland, Regional Hydrogeologist

c: File SW PR CL 03 06 C4, Clarence-Rockland WDS
File SW 13 06 02 07 02, South Nation River Basin (Cobbs Lake Creek)
LF/IDS 7811-A8ZLW6; 2220-9XSRD3; 7515-9HQQ8Q; and 4460-96MQ97



VIA email

October 7th, 2016

Mr. Marc Robert
Senior Environmental Officer
Ministry of the Environment
113 Amelia Street
Cornwall ON K6H 3P1

**RE: Clarence-Rockland WDS 2012-2015 Annual Operations
Monitoring Reports and Annual Reports on Groundwater
and Surface Water Monitoring Program
Clarence-Rockland Landfill Site**

Sir:

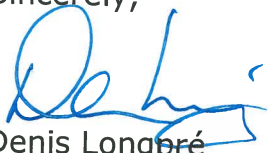
Further to your email dated October 4th, 2016 we acknowledge receipt of the Surface Water Group's review. We would like to take this opportunity to inform the Ministry that the City of Clarence-Rockland has retained the services of jp2g Consultants Inc. for the annual monitoring and reporting requirements for the landfill site, following a competitive bidding process. This agreement is for a term of three (3) years starting in 2016.

We will provide jp2g Consultants Inc. with this report and the Groundwater Group's report as soon as it is made available to us.

The 2016 sampling is almost complete and will ensure that these recommendations are all addressed in 2017 and moving forward with future reporting.

Should you have any comments or questions, please do not hesitate to contact us at any time.

Sincerely,



Denis Longpré
Environment Manager

c.c. Mr. Jean-Yves Carrier, Director Infrastructures and Planning
Mr. Andrew Buzza, jp2g Consultants Inc.

APPENDIX D

Site Stratigraphy and Monitoring Well Construction

LIST OF ABBREVIATIONS

The abbreviations commonly employed on Records of Boreholes, on figures and in the text of the report are as follows:

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-------------------------------------|-----------------------------------|------------|--------|-------|---------|---------|----------|-------|----------|------------|---------|-------------|------------|-----|-----------|---------|----------|------|----------|------------|------|----------|--------------|-------|-----------|----------------|------------|------------|----------------|------|----------|------------|
| <p>I. SAMPLE TYPE</p> <p>AS Auger sample BS Block sample CS Chunk sample DO Drive open DS Denison type sample FS Foil sample RC Rock core SC Soil core ST Slotted tube TO Thin-walled, open TP Thin-walled, piston WS Wash sample</p> <p>II. PENETRATION RESISTANCE</p> <p>Standard Penetration Resistance (SPT), N: The number of blows by a 63.5 kg. (140 lb.) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) drive open Sampler for a distance of 300 mm (12 in.)</p> <p>Dynamic Penetration Resistance; N_d: The number of blows by a 63.5 kg (140 lb.) hammer dropped 760 mm (30 in.) to drive uncased a 50 mm (2 in.) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in.).</p> <p>PH: Sampler advanced by hydraulic pressure PM: Sampler advanced by manual pressure WH: Sampler advanced by static weight of hammer WR: Sampler advanced by weight of sampler and rod</p> <p>Peizo-Cone Penetration Test (CPT): An electronic cone penetrometer with a 60° conical tip and a projected end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurements of tip resistance (Q_t), porewater pressure (PWP) and friction along a sleeve are recorded Electronically at 25 mm penetration intervals.</p> | <p>III. SOIL DESCRIPTION</p> <p>(a) Cohesionless Soils</p> <table border="0"> <tr> <td>Density Index (Relative Density)</td> <td style="text-align: center;">N Blows/300 mm Or Blows/ft.</td> </tr> <tr> <td>Very loose</td> <td style="text-align: center;">0 to 4</td> </tr> <tr> <td>Loose</td> <td style="text-align: center;">4 to 10</td> </tr> <tr> <td>Compact</td> <td style="text-align: center;">10 to 30</td> </tr> <tr> <td>Dense</td> <td style="text-align: center;">30 to 50</td> </tr> <tr> <td>Very dense</td> <td style="text-align: center;">over 50</td> </tr> </table> <p>(b) Cohesive Soils</p> <table border="0"> <tr> <td>Consistency</td> <td style="text-align: center;">C_u, S_u</td> <td style="text-align: center;">Psf</td> </tr> <tr> <td>Very soft</td> <td style="text-align: center;">0 to 12</td> <td style="text-align: center;">0 to 250</td> </tr> <tr> <td>Soft</td> <td style="text-align: center;">12 to 25</td> <td style="text-align: center;">250 to 500</td> </tr> <tr> <td>Firm</td> <td style="text-align: center;">25 to 50</td> <td style="text-align: center;">500 to 1,000</td> </tr> <tr> <td>Stiff</td> <td style="text-align: center;">50 to 100</td> <td style="text-align: center;">1,000 to 2,000</td> </tr> <tr> <td>Very stiff</td> <td style="text-align: center;">100 to 200</td> <td style="text-align: center;">2,000 to 4,000</td> </tr> <tr> <td>Hard</td> <td style="text-align: center;">Over 200</td> <td style="text-align: center;">Over 4,000</td> </tr> </table> | Density Index (Relative Density) | N Blows/300 mm Or Blows/ft. | Very loose | 0 to 4 | Loose | 4 to 10 | Compact | 10 to 30 | Dense | 30 to 50 | Very dense | over 50 | Consistency | C_u, S_u | Psf | Very soft | 0 to 12 | 0 to 250 | Soft | 12 to 25 | 250 to 500 | Firm | 25 to 50 | 500 to 1,000 | Stiff | 50 to 100 | 1,000 to 2,000 | Very stiff | 100 to 200 | 2,000 to 4,000 | Hard | Over 200 | Over 4,000 |
| Density Index (Relative Density) | N Blows/300 mm Or Blows/ft. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Very loose | 0 to 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Loose | 4 to 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Compact | 10 to 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dense | 30 to 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Very dense | over 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Consistency | C_u, S_u | Psf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Very soft | 0 to 12 | 0 to 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Soft | 12 to 25 | 250 to 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Firm | 25 to 50 | 500 to 1,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stiff | 50 to 100 | 1,000 to 2,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Very stiff | 100 to 200 | 2,000 to 4,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hard | Over 200 | Over 4,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>IV. SOIL TESTS</p> <p>w water content w_p plastic limit w_l liquid limit C consolidation (oedometer) test CHEM chemical analysis (refer to text) CID consolidated isotropically drained triaxial test¹ CIU consolidated isotropically undrained triaxial test with porewater pressure measurement¹ D_R relative density (specific gravity, G_s) DS direct shear test M sieve analysis for particle size MH combined sieve and hydrometer (H) analysis MPC modified Proctor compaction test SPC standard Proctor compaction test OC organic content test SO_4 concentration of water-soluble sulphates UC unconfined compression test UU unconsolidated undrained triaxial test V field vane test (LV-laboratory vane test) γ unit weight</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note:

1. Tests which are anisotropically consolidated prior shear are shown as CAD, CAU.

LIST OF SYMBOLS

Unless otherwise stated, the symbols employed in the report are as follows:

I. GENERAL

| | |
|---------------------------|-----------------------------|
| π | = 3.1416 |
| $\ln x$ | natural logarithm of x |
| $\log_{10} x$ or $\log x$ | logarithm of x to base 10 |
| g | Acceleration due to gravity |
| t | time |
| F | factor of safety |
| V | volume |
| W | weight |

II. STRESS AND STRAIN

| | |
|--------------------------------|--|
| γ | shear strain |
| Δ | change in, e.g. in stress: $\Delta \sigma'$ |
| ϵ | linear strain |
| ϵ_v | volumetric strain |
| η | coefficient of viscosity |
| ν | Poisson's ratio |
| σ | total stress |
| σ' | effective stress ($\sigma' = \sigma - u$) |
| σ'_{vo} | initial effective overburden stress |
| $\sigma_1, \sigma_2, \sigma_3$ | principal stresses (major, intermediate, minor) |
| σ_{oct} | mean stress or octahedral stress = $(\sigma_1 + \sigma_2 + \sigma_3)/3$ |
| τ | shear stress |
| u | porewater pressure |
| E | modulus of deformation |
| G | shear modulus of deformation |
| K | bulk modulus of compressibility |

III. SOIL PROPERTIES

(a) Index Properties

| | |
|--------------------|---|
| $\rho(\gamma)$ | bulk density (bulk unit weight*) |
| $\rho_d(\gamma_d)$ | dry density (dry unit weight) |
| $\rho_w(\gamma_w)$ | density (unit weight) of water |
| $\rho_s(\gamma_s)$ | density (unit weight) of solid particles |
| γ' | unit weight of submerged soil ($\gamma' = \gamma - \gamma_w$) |
| D_R | relative density (specific gravity) of solid particles ($D_R = \rho_s/\rho_w$) formerly (G_s) |
| e | void ratio |
| n | porosity |
| S | degree of saturation |
| * | Density symbol is ρ . Unit weight symbol is γ where $\gamma = \rho g$ (i.e. mass density x acceleration due to gravity) |

(a) Index Properties (cont'd.)

| | |
|-----------|--|
| w | water content |
| w_L | liquid limit |
| w_p | plastic limit |
| I_p | plasticity index = $(w - w_p)$ |
| w_s | shrinkage limit |
| I_L | liquidity index = $(w - w_p)/I_p$ |
| I_c | consistency index = $(w - w_p)/I_p$ |
| e_{max} | void ratio in loosest state |
| e_{min} | void ratio in densest state |
| I_D | density index = $(e_{max} - e)/(e_{max} - e_{min})$ (formerly relative density) |

(b) Hydraulic Properties

| | |
|-----|--|
| h | hydraulic head or potential |
| q | rate of flow |
| v | velocity of flow |
| i | hydraulic gradient |
| k | hydraulic conductivity (coefficient of permeability) |
| j | seepage force per unit volume |

(c) Consolidation (one-dimensional)

| | |
|-------------|--|
| C_c | compression index (normally consolidated range) |
| C_r | recompression index (overconsolidated range) |
| C_s | swelling index |
| C_α | coefficient of secondary consolidation |
| m_v | coefficient of volume change |
| c_v | coefficient of consolidation |
| T_v | time factor (vertical direction) |
| U | degree of consolidation |
| σ'_p | pre-consolidation pressure |
| OCR | Overconsolidation ratio = σ'_p/σ'_{vo} |

(d) Shear Strength

| | |
|------------------|--|
| τ_p, τ_r | peak and residual shear strength |
| ϕ' | effective angle of internal friction |
| δ | angle of interface friction |
| μ | coefficient of friction = $\tan \delta$ |
| c' | effective cohesion |
| c_u, s_u | undrained shear strength ($\phi=0$ analysis) |
| p | mean total stress $(\sigma_1 + \sigma_3)/2$ |
| p' | mean effective stress $(\sigma'_1 + \sigma'_3)/2$ |
| q | $(\sigma_1 - \sigma_3)/2$ or $(\sigma'_1 - \sigma'_3)/2$ |
| q_u | compressive strength $(\sigma_1 - \sigma_3)$ |
| S_t | sensitivity |

Notes: 1. $\tau = c' + \sigma' \tan \phi'$
2. Shear strength = (Compressive strength)/2

LITHOLOGICAL AND GEOTECHNICAL ROCK DESCRIPTION TERMINOLOGY

WEATHERING STATE

Fresh: no visible sign of weathering

Faintly Weathered: weathering limited to the surface of major discontinuities.

Slightly weathered: penetrative weathering developed on open discontinuity surfaces but only slight weathering of rock material.

Moderately weathered: weathering extends throughout the rock mass but the rock material is not friable

Highly weathered: weathering extends throughout rock mass and the rock material is partly friable.

Completely weathered: rock is wholly decomposed and in a friable condition but the rock texture and structure are preserved.

BEDDING THICKNESS

Description

Bedding Plane Spacing

| | |
|---------------------|----------------|
| Very thickly bedded | >2 m |
| Thickly bedded | 0.6 m to 2m |
| Medium bedded | 0.2 m to 0.6 m |
| Thinly bedded | 60 mm to 0.2 m |
| Very thinly bedded | 20 mm to 60 mm |
| Laminated | 6 mm to 20 mm |
| Thinly laminated | <6 mm |

JOINT OR FOLIATION SPACING

Description

Spacing

| | |
|------------------|-------------|
| Very wide | >3 m |
| Wide | 1 - 3 m |
| Moderately close | 0.3 - 1 m |
| Close | 50 - 300 mm |
| Very close | <50 mm |

GRAIN SIZE

Term

Size*

| | |
|---------------------|------------------|
| Very Coarse Grained | >60 mm |
| Coarse Grained | 2 - 60 mm |
| Medium Grained | 60 microns - 2mm |
| Fine Grained | 2 - 60 microns |
| Very Fine Grained | <2 microns |

Note: *Grains >60 microns diameter are visible to the naked eye.

O:\Templates\Rock Description Terminology

CORE CONDITION

Total Core Recovery

The percentage of solid drill core recovered regardless of quality or length, measured relative to the length of the total core run.

Solid Core Recovery (SCR)

The percentage of solid drill core, regardless of length, recovered at full diameter, measured relative to the length of the total core run.

Rock Quality Designation (RQD)

The percentage of solid drill core, greater than 100 mm length, recovered at full diameter, measured relative to the length of the total core run. RQD varies from 0% for completely broken core 100% for core in solid sticks.

DISCONTINUITY DATA

Fracture Index

A count of the number of discontinuities (physical separations) in the rock core, including both naturally occurring fractures and mechanically induced breaks caused by drilling.

Dip with Respect to (W.R.T.) Core Axis

The angle of the discontinuity relative to the axis (length) of the core. In a vertical borehole a discontinuity with a 90° angle is horizontal.

Description and Notes

An abbreviated description of the discontinuities, whether naturally occurring separations such as fractures, bedding planes and foliation planes or mechanically induced features caused by drilling such as ground or shattered core and mechanically separated bedding or foliation surfaces. Additional information concerning the nature information concerning the nature of fracture surfaces and infillings are also noted.

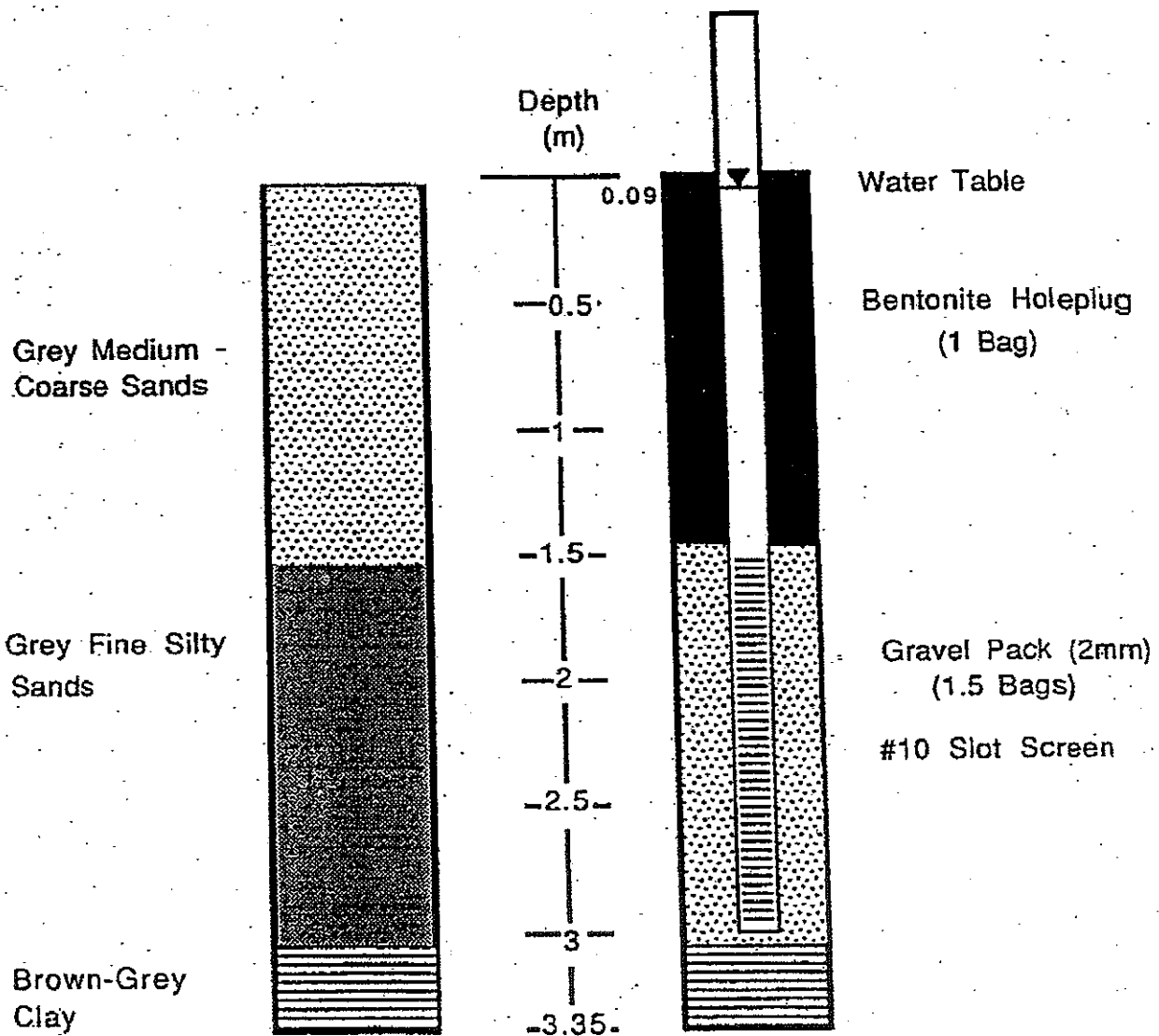
Abbreviations

| | | | |
|-----|-----------------------|------|----------------|
| B- | Bedding | Ca- | Calcite |
| FO- | Foliation/Schistosity | P- | Polished |
| CL- | Cleavage | S- | Slickensided |
| SH- | Shear Plane/Zone | SM- | Smooth |
| VN- | Vein | R- | Ridged/Rough |
| F- | Fault | ST- | Stepped |
| CO- | Contact | PL- | Planar |
| J- | Joint | FL- | Flexured |
| FR- | Fracture | UE- | Uneven |
| MF- | Mechanical | W- | Wavy |
| A- | Angular | C- | Curved |
| BP- | Bedding Plane | H- | Hackly |
| BL- | Blast Induced | SL- | Sludge Coated |
| | Parallel To | TCA- | To Core Axis |
| | Perpendicular To | STR- | Stress Induced |

WELL LOG AND PIEZOMETER CONSTRUCTION DETAIL

CLARENCE TOWNSHIP P1

P1-90

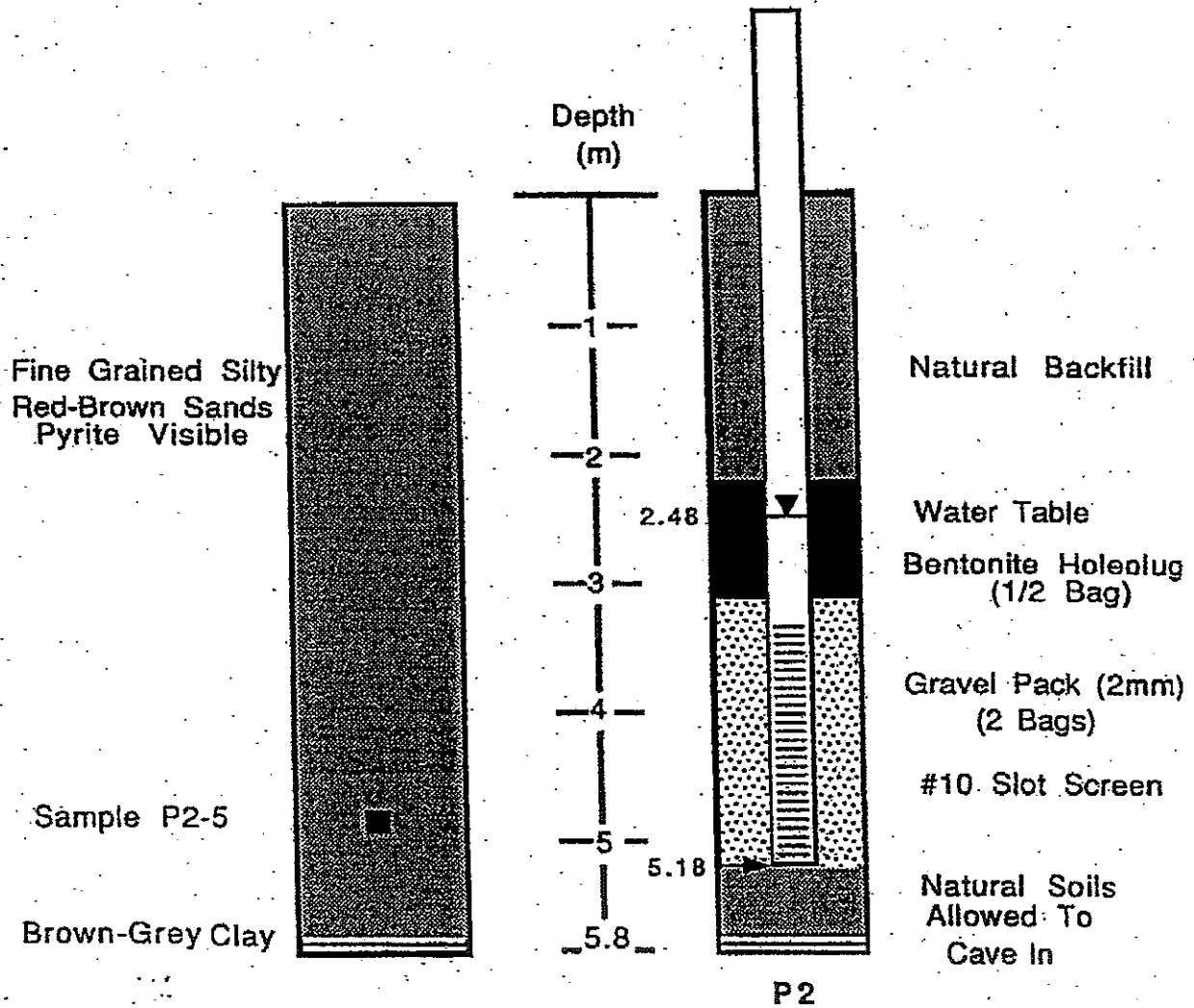


P1

WELL LOG AND PIEZOMETER CONSTRUCTION DETAIL

CLARENCE TOWNSHIP P2

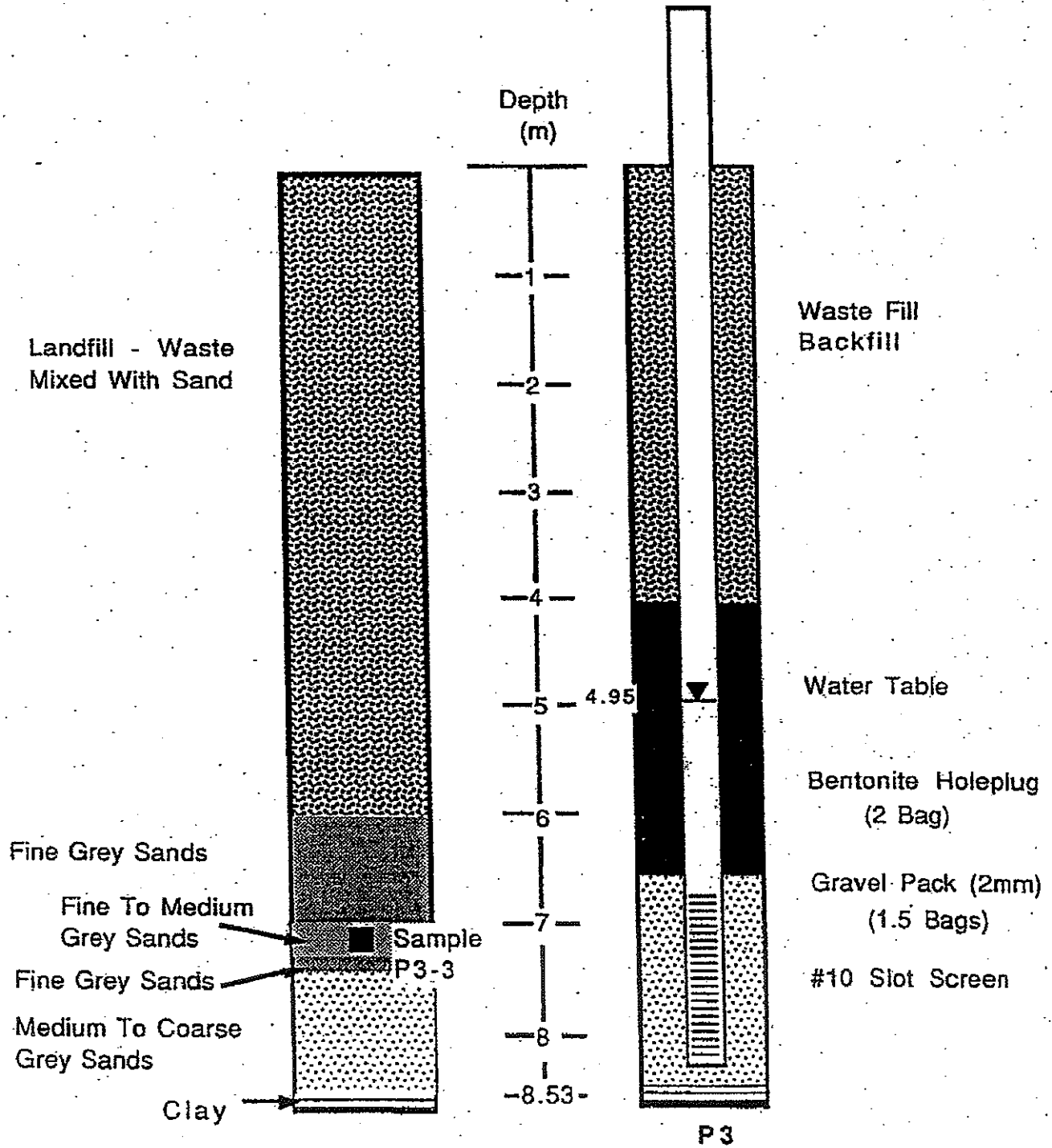
P2-90



WELL LOG AND PIEZOMETER CONSTRUCTION DETAIL

CLARENCE TOWNSHIP P3

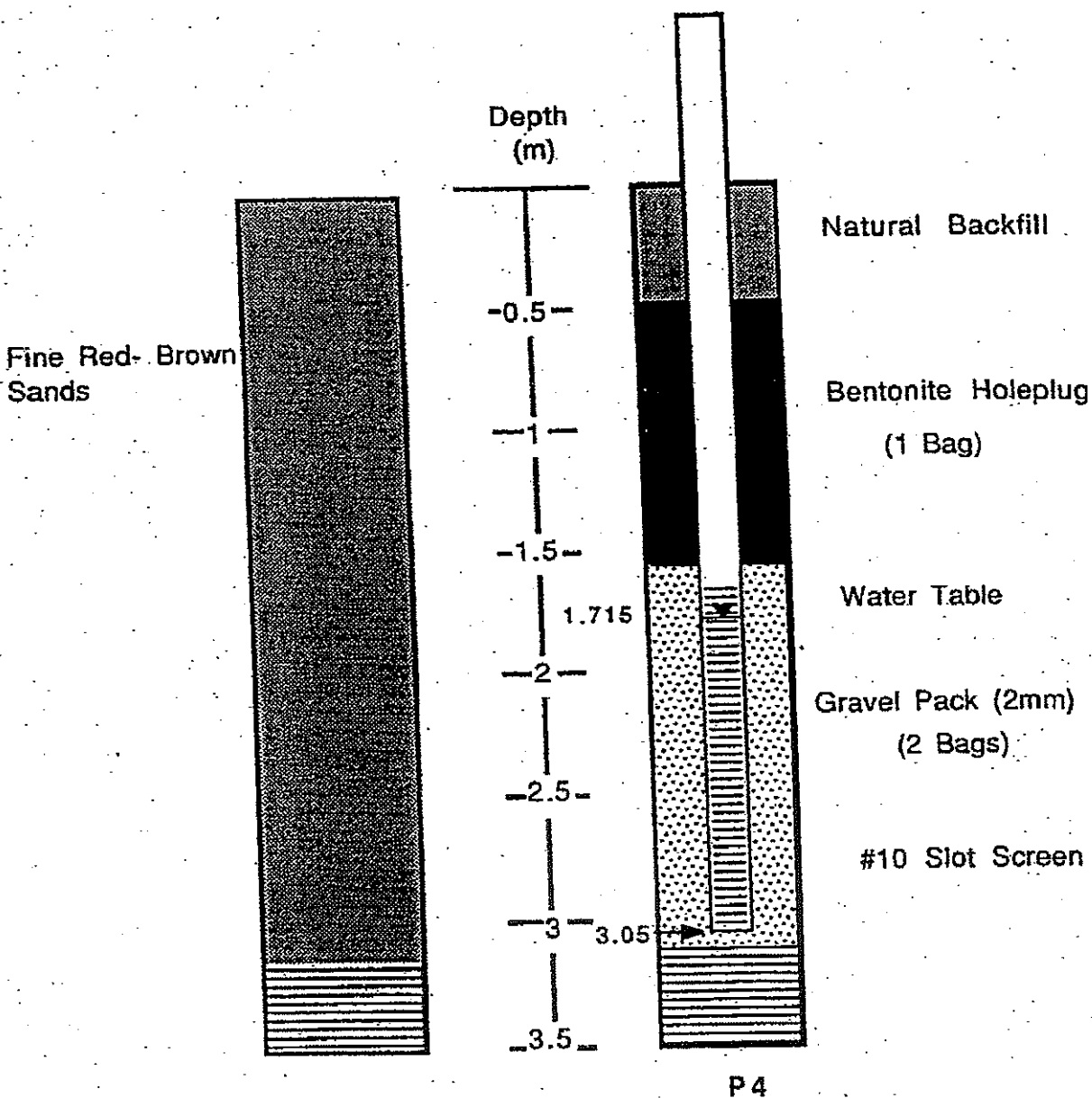
P3-90



WELL LOG AND PIEZOMETER CONSTRUCTION DETAIL

CLARENCE TOWNSHIP P4

P4-90

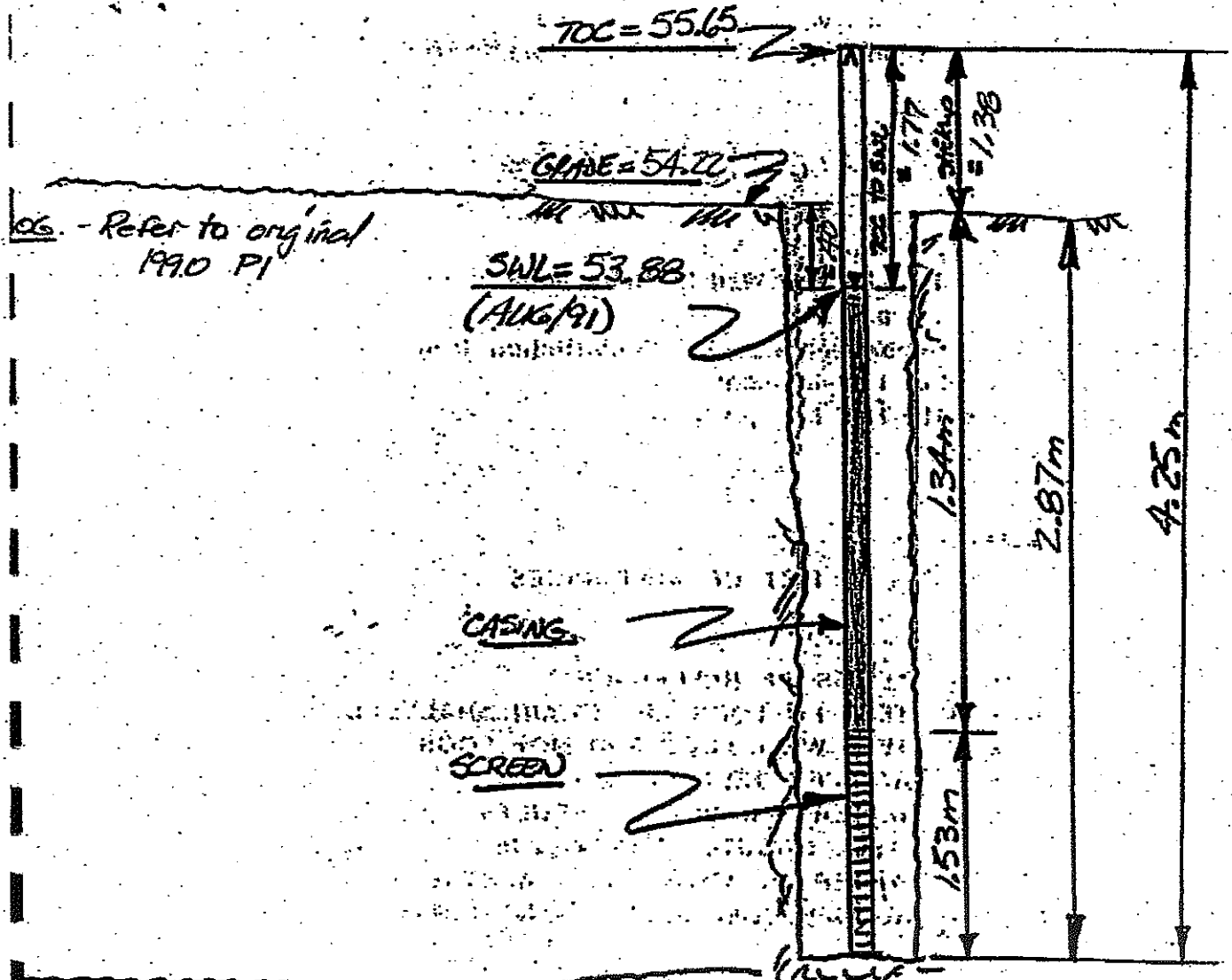


STANCON FILE 90-72

PI-91

Top of Clarence landfill site

Piezometer - as built elevations for: PI'



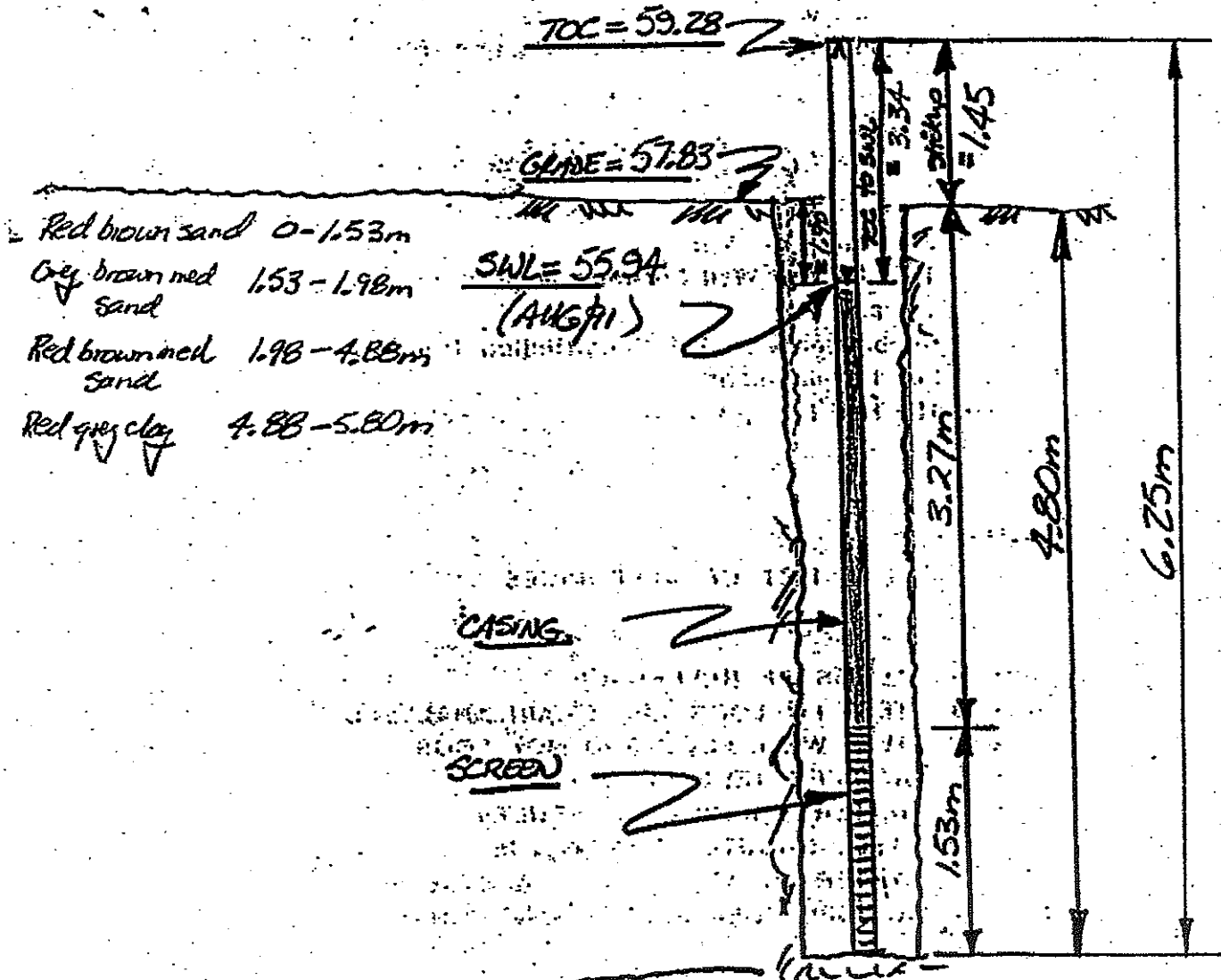
TOC = Top of plastic well casing, not cap!
BOC = Bottom of casing (screen)
SWL = Static water level.

PANCON FILE 90-72

P5A-91

up of Clarence landfill site

levelometer - as built elevations for: P5-1 -



TOC = Top of plastic well casing, not cap!

BOC = Bottom of casing (screen)

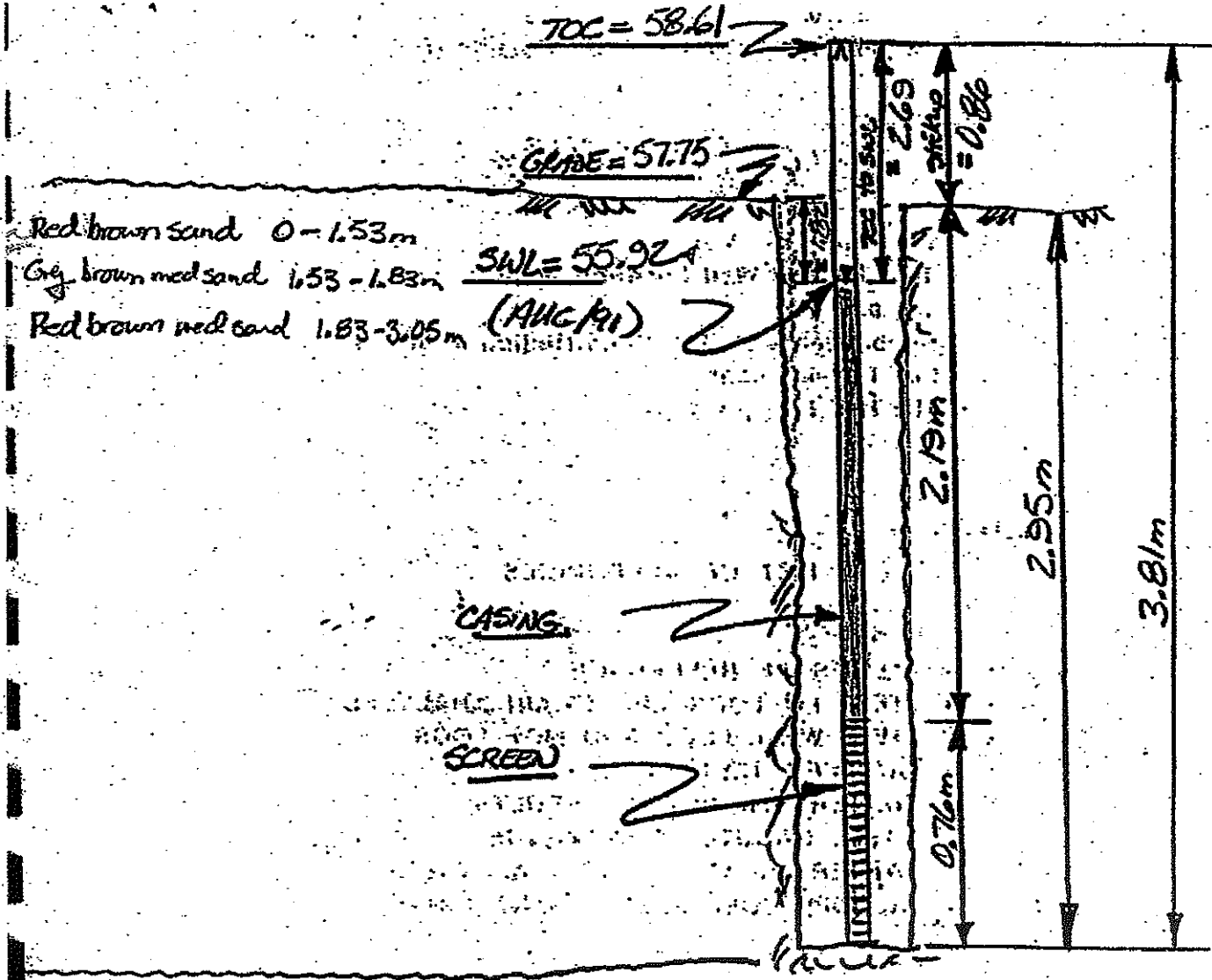
SWL = Static water level.

STANCON FILE 90-72

top of Clarence landfill site

P5B-91

Piezometer - as built elevations for: P5-2



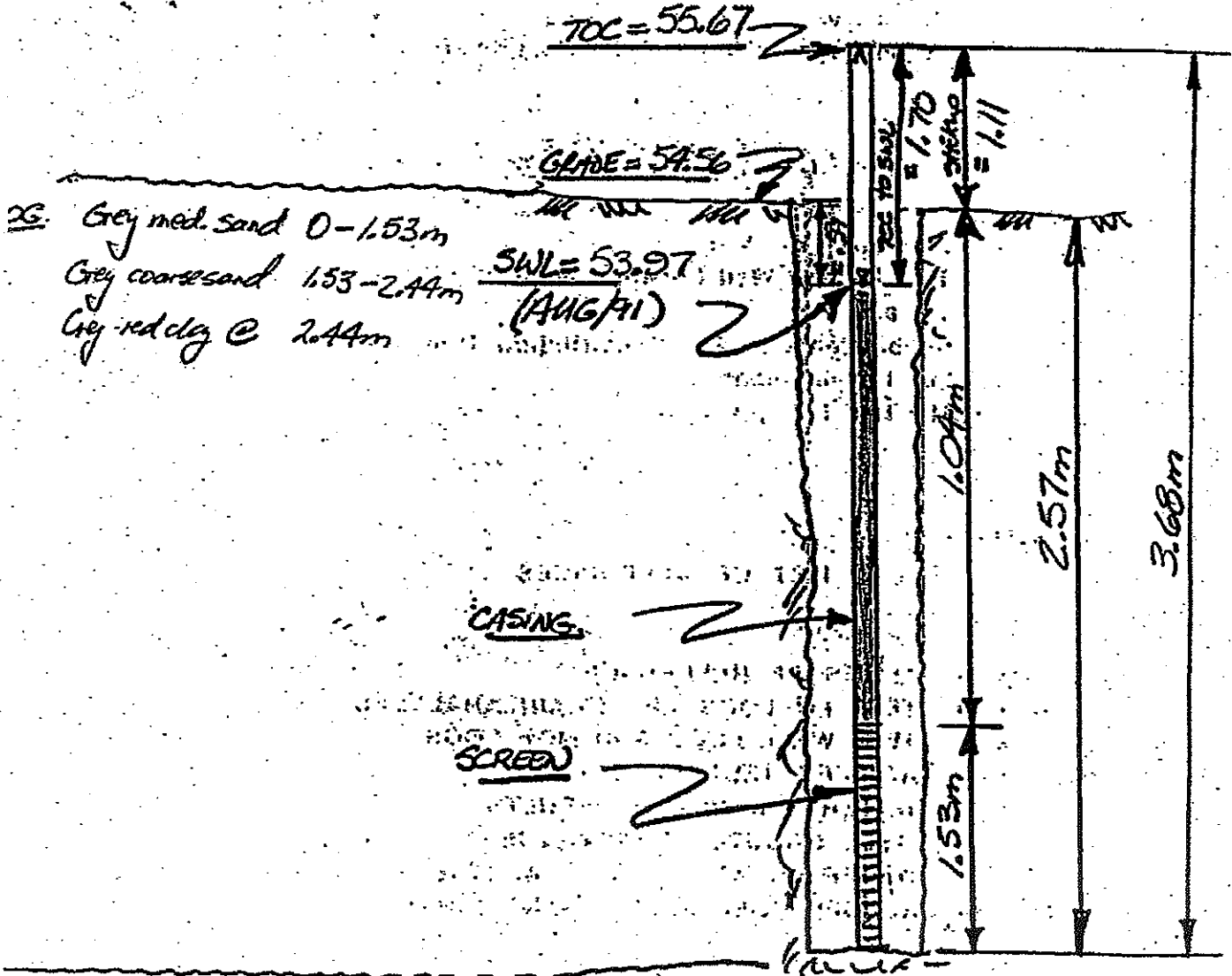
TOC = Top of plastic well casing, not cap!
BOC = Bottom of casing (screen)
SWL = Static water level.

SPANCON FILE 90-72

P6-91

Top of Clarence landfill site

Piezometer - as built & elevations for: P6



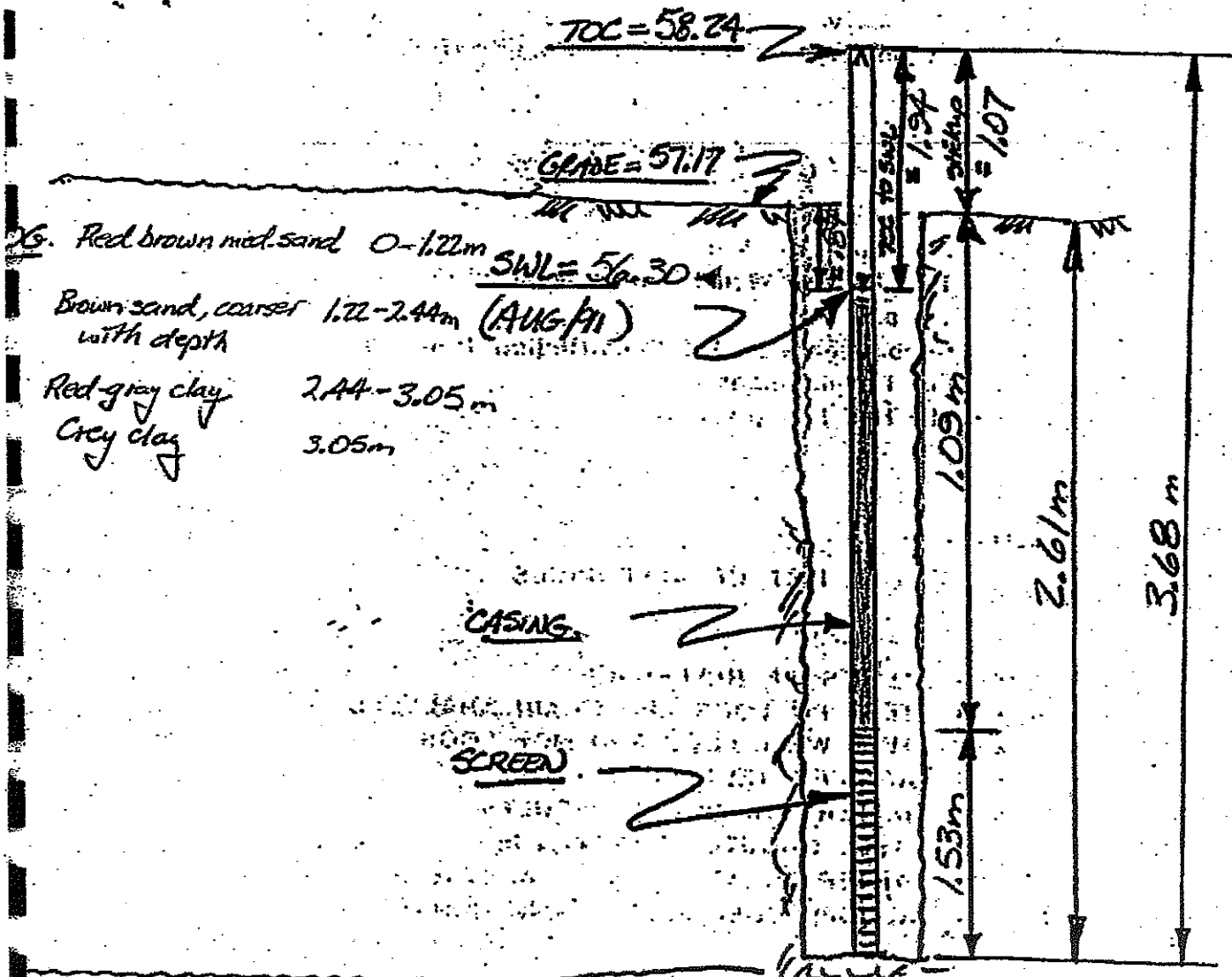
TOC = Top of plastic well casing, not cap!
BOC = Bottom of casing (screen)
SWL = Static water level.

STANCON FILE 90-72

Tip of Clarence Landfill Site

P7-91

Piezometer - as built & elevations for: P7



TOC = Top of plastic well casing, not cap!

BOC = Bottom of casing (screen)

SWL = Static water level.

PROJECT: 021-2702

RECORD OF BOREHOLE GS-92

SHEET 1 OF 2

LOCATION: See Plan

DRILLING DATE: April 6, 1992

DATUM: Canadian

UNIT:

SAMPLER/HAMMER: 63.5kg DROP: 760 mm



| DEPTH SCALES METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY, k_m/s | | INSTALLATIONS | |
|---------------------|---------------|---|-------------|-----------|--------|------|------------|-----------------------|--------------|-------|------------------------|---------------------------------|---------------|----------------------|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. (m) | NUMBER | TYPE | BLOWS/0.3m | RECOVERY % | LAB. TESTING | % LEL | WATER CONTENT, PERCENT | | | | |
| 0 | | Ground Surface | | 59.15 | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 58.91 | | | | | | | | | | | |
| 1 | | Very loose to loose brown stratified fine SAND | | 58.24 | 1 | DC | 5 | | | | | | | Bentonite Seal | |
| 2 | | | | 2 | DC | 5 | | | | | | | | Native Backfill | |
| 3 | | | | 3 | DC | WR | | | | | | | | Well Screen C | |
| 4 | | Grey SILTY CLAY, occasional red brown layer, scattered trace of black organic matter below 8 metre depth and occasional very fine sand seam | | 55.80 | 4 | DC | 1 | | | | | | | Bentonite Seal | |
| 5 | | | | 5 | DC | 1 | | | | | | | | | |
| 6 | | | | 6 | DC | WH | | | | | | | | | |
| 7 | | | | 7 | DC | WH | | | | | | | | Silica Sand Backfill | |
| 8 | | | | | 8 | DC | WH | | | | | | Well Screen B | | |
| 9 | | | | | 9 | DC | PM | | | | | | | | |
| 10 | | | | | 10 | DC | PM | | | | | | | Bentonite Seal | |

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: KAM

DATA INPUT: J. COBISA, DISC 9

CONTINUED ON NEXT PAGE

PROJECT: R212717

RECORD OF BOREHOLE G8-92

SHEET 2 OF 2

LOCATION: See Plan

BORING DATE: April, 1992

DATUM: Geodetic

DIP:

SAMPLER: HAMMER, 53.5kg DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION | | | | HYDRAULIC CONDUCTIVITY | | | | INSTALLATIONS | |
|--------------------|---------------|------------------------------|-------------|-----------------|--------|------|----------------------|-------------------|-------|--|--|------------------------|------------------------|--|--|---------------|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWER/3M RECOVERY % | LAB. TESTING | % | | | | k _{ov} /s | | | | |
| | | | | | | | | | % LEL | | | | WATER CONTENT, PERCENT | | | | |
| | | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | | | |

Power Auger
240mm Diam. (Hollow Stem)

Grey SILTY CLAY, occasional red brown layer, scattered trace of black organic matter below 6 metre depth and occasional very fine sand seam

Slica Sand Backfill

Well Screen A

W.L. in Screen A at Elev. 48.34m Apr. 28, 1992
Screen B at Elev. 52.82m May 1, 1992
Screen C at Elev. 53.07m Apr 28, 1992

DATA INPUT: JOGBISA, DISC 8

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: KAM

PROJECT: 921270

RECORD OF BOREHOLE G9-92

SHEET 1 OF 2

LOCATION: (See Plan)

BORING DATE: APR 14, 1992

DEPTH: 6.60m

DIP:

SAMPLER HAMMER: 65 kg-DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION | | | | HYDRAULIC CONDUCTIVITY | | | | INSTALLATIONS | | |
|--------------------|--|---|-------------|-----------------|--------|------|------------|-------------------|--------------|----|-----|------------------------|-----|-------|------------------------|---------------|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | 50 | 100 | 150 | 200 | % LEL | WATER CONTENT, PERCENT | | | |
| 0 | | Ground Surface | | 55.97 | | | | | | | | | | | | | | |
| | | Dark brown sandy TOPSOIL | | 0.00 | | | | | | | | | | | | | | |
| | | Yellow brown SILTY fine SAND | | 0.08 | | | | | | | | | | | | | | |
| | | | | 55.51 | | | | | | | | | | | | | | |
| | | | | 0.46 | | | | | | | | | | | | | | |
| 1 | Power Auger 650mm Diam. (6002 Stam) | Loose brown to grey fine SAND, occasional silty sand seam | | | 1 | DO | 7 | | | | | | | | | | | |
| | | | | | | 2 | DO | 9 | | | | | | | | | | |
| | | | | | | 3 | DO | WR | | | | | | | | | | |
| | | | | 53.23 | | | | | | | | | | | | | | |
| | | | | 2.74 | | | | | | | | | | | | | | |
| 2 | Power Auger 300mm Diam. PVD casing | Loose brown to grey fine SAND, occasional silty sand seam | | | 4 | DO | 1 | | | | | | | | | | | |
| | | | | | | 5 | DO | PM | | | | | | | | | | |
| | | | | | | 6 | DO | PM | | | | | | | | | | |
| 3 | Power Auger 240mm Diam. (Hollow Stam) | Grey SILTY CLAY, occasional red brown layer, trace black organic matter below 3.6 metre depth | | | 7 | DO | PM | | | | | | | | | | | |
| | | | | | | 8 | DO | PM | | | | | | | | | | |
| | | | | | | 9 | DO | PM | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | |

DATA INPUT: JCOBSSA, DRCS

DEPTH SCALE (ALONG HOLE)
1 to 40

Golder Associates

LOGGED: K.A.M.
CHECKED: KAM

PROJECT: 0212707

RECORD OF BOREHOLE G9-92

SHEET 2 OF 2

LOCATION: S44 18m

BORING DATE: April 25, 1992

DATUM: Gage datum

DIP:

SAMPLER/HAMMER: CS 5kg DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION | | HYDRAULIC CONDUCTIVITY | | INSTALLATIONS |
|------------------------------|--|---|-------------|-----------------|--------|------|---------|-------------------|--------------|------------------------|------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOW/SP | RECOVERY % | LAB. TESTING | % LEL | WATER CONTENT, PERCENT | |
| CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | | |
| 9 | Power Auger 240mm Elev. (Hollow Stem) | Grey SILTY CLAY, occasional red brown layer, trace black organic matter below 9.8 metre depth | | 9.80 | 50 | PM | | | | | | Bentonite Seal Silty Sand Backfill Well Screen A W.L. in Screen A at Elev. 45.17m Screen B at Elev. 54.31m Screen C at Elev. 55.55m Apr. 25, 1992 |
| 10 | | | | 10.00 | 50 | PM | | | | | | |
| 11 | | | | 11.00 | 50 | PM | | | | | | |
| 12 | | | | 12.00 | 50 | PM | | | | | | |
| 13 | | End of Hole | | 43.17 | | | | | | | | |
| 14 | | | | 12.80 | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |

DATA INPUT: J.GOBIRA, DISC 9

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: K.A.M.

PROJECT: 821-2707
 LOCATION: See Plan
 U/P:

RECORD OF BOREHOLE G10-92

BORING DATE: April 7, 1992

SHEET 1 OF 2

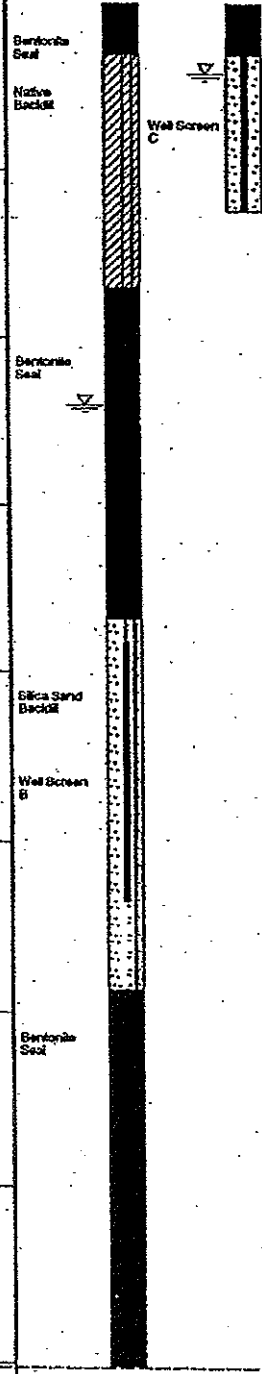
DATUM: Geodetic

SAMPLER/HAMMER: 50 S/KG, BHC, 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | GAS CONCENTRATION, % | | HYDRAULIC CONDUCTIVITY, k_v cm/s | | INSTALLATIONS | |
|--------------------|---------------|---|-------------|-----------------|--------|----------------------|------------|------------------------------------|-------------|---------------|-------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB TESTING | | % LEL |
| 0 | | Ground Surface | | 53.88 | | | | | | | |
| | | Brown SILTY fine SAND | | 0.00 | | | | | | | |
| | | | | 53.77 | | | | | | | |
| | | | | 0.21 | | | | | | | |
| 1 | | Loose brown to grey fine to medium SAND | | | 1 | 50 DO S | | | | | |
| | | | | 52.87 | | | | | | | |
| | | | | 1.31 | | | | | | | |
| 2 | | | | | 2 | 50 DO PM | | | | | |
| 3 | | | | | 3 | 50 DO PM | | | | | |
| 4 | | | | | 4 | 50 DO PM | | | | | |
| 5 | | Grey SILTY CLAY, occasional red brown layer, silty sand seam from 4.4 metres to 4.7 metres depth, traces of black organic matter below 8.5 metres depth | | | 5 | 50 DO PM | | | | | |
| 6 | | | | | 6 | 50 DO PM | | | | | |
| 7 | | | | | 7 | 50 DO PM | | | | | |
| 8 | | | | | 8 | 50 DO PM | | | | | |
| 9 | | | | | 9 | 50 DO PM | | | | | |
| 10 | | | | | 10 | 50 DO PM | | | | | |

Power Auger
 200mm Dia. (Hollow Stem)



DATA INPUT: J. COBBA, DSCG

CONTINUED ON NEXT PAGE

DEPTH SCALE (ALONG HOLE)
 1 to 40

Golder Associates

LOGGED: K.A.M.
 CHECKED: KAM

PROJECT: 921270

RECORD OF BOREHOLE G10-92

SHEET 2 OF 2

LOCATION: See Plan

BORING DATE: April 7, 1992

DATUM: Geodetic

DIP:

SAMPLER/HAMMER: CS-510; DROP: 760 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | | GAS CONCENTRATION (%) | | HYDRAULIC CONDUCTIVITY, k cm/s | | INSTALLATIONS | | |
|--------------------|--|---|-------------|-----------------|-------------|------|------------|------------|-----------------------|----|--------------------------------|-------|---------------|-----|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOW/30 cm | RECOVERY % | LAB. TESTING | % | | Wp, W | | | |
| | | | | | | | | | | 50 | 100 | 150 | | 200 | 20 |
| | | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | | | |
| 8 | Power Auger 200mm Diam. (Hollow Stem) | Grey SILTY CLAY, occasional red brown layer, silty sand seam from 4.4 metres to 4.7 metres depth, traces of black organic matter below 8.5 metres depth | | 10 | 50 | DO | PM | | | | | | | | <p>Well in Screen A at Elev. 44.41m Screen Bat Elev. 51.61m Screen Cat Elev. 53.56m Apr. 28, 1992</p> |
| 9 | | | | 11 | 50 | DO | PM | | | | | | | | |
| 10 | | | | 12 | 50 | DO | PM | | | | | | | | |
| 11 | | | | 12.70 11.28 | End of Hole | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |

DATA INPUT: J. COBISA, Dec 9

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: KAM

PROJECT: 9212707

LOCATION: See Plan

DIP:

RECORD OF BOREHOLE G11-92

BORING DATE: APR 9, 1992

SAMPLER/HAMMER: GAS/ST/DRCF-760 (M)

SHEET 1 OF 1

DATUM: GGDalt



| DEPTH SCALE METERS | BORING METHOD | SOIL PROFILE | | SAMPLES | | | GAS CONCENTRATION | | | | HYDRAULIC CONDUCTIVITY, k_{ov} | | | | INSTALLATIONS | | | |
|--------------------|---------------|--|-------------|-----------------|--------|------|-------------------|------------|-------------|----------------|----------------------------------|--|--|------------------------|---------------|--|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB TESTING | % LEL | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | | | | 50 100 150 200 | | | | 20 40 60 80 | | | | |
| 0 | | Ground Surface | | 49.46 0.00 | | | | | | | | | | | | | | |
| | | Dark brown organic SILT | | | | | | | | | | | | | | | | |
| 1 | | | | 49.85 0.61 | | | | | | | | | | | | | | |
| | | Loose brown to grey fine SAND | | | 1 | 25 | 50 | | | | | | | | | | | |
| 2 | | | | 47.54 1.92 | | | | | | | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown seam | | | 2 | 50 | 100 | WR | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
| | | End of Hole | | 45.80 3.66 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |

DEPTH SCALE (ALONG HOLE)

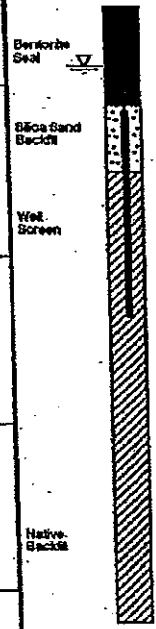
1 to 40

Golder Associates

LOGGED: KAM

CHECKED: KAM

DATA INPUT: JACOBISA, DISC 9



W.L. in Screen at Elev. 43.12m Apr. 29, 1992

PROJECT: 0212/07

RECORD OF BOREHOLE G12-92

SHEET 1 OF 1

LOCATION: Gop. Hill

BORING DATE: APR 28, 1992

DATUM: GANADIAN

UJF

SAMPLER/HAMMER: G3-96g, DDCP, 740 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY, k_v cm/s | | | | INSTALLATIONS | | |
|--------------------|---------------|---|-------------|-----------|--------|------|------------|-----------------------|--------------|----|-----|------------------------------------|-----|------------------------|-----------------|---------------|-----------------|----|
| | | DESCRIPTION | STRATA PLOT | ELEV. (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | % | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | | | | 50 | 100 | 150 | 200 | Wp | W ₁₀ | | W ₂₅ | WL |
| 0 | | Ground Surface | | 53.85 | | | | | | | | | | | | | | |
| | | Dark brown silty TOPSOIL | | 53.55 | | | | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 53.30 | | | | | | | | | | | | | | |
| | | | | 53.15 | | | | | | | | | | | | | | |
| 1 | | Grey brown SILTY CLAY, occasional red brown layer (Weathered Crust) | | 52.95 | 1 | SO | | | | | | | | | | | | |
| | | | | 52.85 | | | | | | | | | | | | | | |
| | | | | 52.70 | | | | | | | | | | | | | | |
| 2 | | | | | 2 | SO | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 3 | | Grey SILTY CLAY, occasional red brown layer and 100mm silty sand seam from 4.9 metres to 5.0 metres depth, trace organic matter | | | 3 | SO | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | 4 | SO | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | End of Hole | | 48.67 | | | | | | | | | | | | | | |
| | | | | 48.18 | | | | | | | | | | | | | | |

DATA INPUT: J. COBBRA, DISCO

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: J.A.M.

W.L. in Screen at Elev. 53.20m Apr. 28, 1992

PROJECT: 9212207

LOCATION: See Plan

DIP:

RECORD OF BOREHOLE G13-92

BORING DATE: April 10, 1992

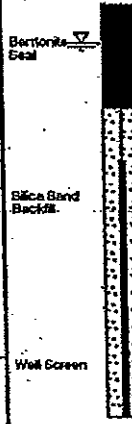
SAMPLER/HAMMER: 60.5kg, DROP: 760 mm

SHEET 1 OF 1

DATE: Goodall



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY, k cm/s | | | | INSTALLATIONS | | |
|--------------------|---|---|-------------|-----------------|--------|------|-----------|-----------------------|--------------|------------------------|--|--------------------------------|--|---|--|---------------|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOW/30cm | RECOVERY % | LAB. TESTING | % | | | | % | | | | |
| | | | | | | | | | | WATER CONTENT, PERCENT | | | | % | | | | |
| 0 | | Ground Surface | | 54.08 | | | | | | | | | | | | | | |
| | | TOPSOIL | | 0.00 | | | | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 0.17 | | | | | | | | | | | | | | |
| | | Brown fine SAND | | 0.27 | | | | | | | | | | | | | | |
| | | Brown fine SAND | | 0.53 | | | | | | | | | | | | | | |
| | | Brown fine SAND | | 0.55 | | | | | | | | | | | | | | |
| 1 | Power Sizer 200mm diam. (plastic drum) | Grey brown SILTY CLAY, occasional red brown layer (Weathered crust) | | 0.71 | | | | | | | | | | | | | | |
| | | Grey brown SILTY CLAY, occasional red brown layer (Weathered crust) | | 1.07 | | | | | | | | | | | | | | |
| 2 | | Grey SILTY CLAY, occasional red brown layer | | 1.87 | | | | | | | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 2.44 | | | | | | | | | | | | | | |
| | | End of Hole | | 2.44 | | | | | | | | | | | | | | |



W.L. in Screen at Elev. 53.86m Apr. 28, 1992

DATA INPUT: J. COBISA, DJBCS

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.
CHECKED: KAM

PROJECT: 2212707
 LOCATION: 544 Hall
 UIR:

RECORD OF BOREHOLE G14-92

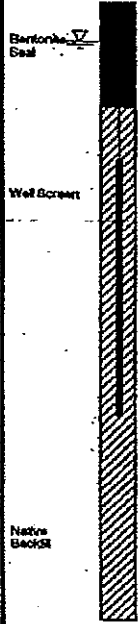
BORING DATE: April 10, 1992

SHEET 1 OF 1
 DATUM: Geodetic

SAMPLER: HAMMER, 60-5kg, DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY (K cm/s) | | | | INSTALLATIONS | | |
|--------------------|---------------|--|-------------|-----------------|--------|------|----------|-----------------------|--------------|---|--|---------------------------------|--|------------------------|--|---------------|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | FLOW/DIR | RECOVERY % | LAB. TESTING | % | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | | | | % | | | | % | | | | |
| 0 | | Ground Surface | | 56.71 | | | | | | | | | | | | | | |
| | | TOPSOIL | | 0.08 | | | | | | | | | | | | | | |
| | | Yellow brown SILTY fine SAND | | 58.28 | | | | | | | | | | | | | | |
| | | | | 0.43 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | |
| | | Loose brown to grey fine SAND, occasional silty sand layer | | 59.97 | | | | | | | | | | | | | | |
| | | | | 2.74 | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 63.05 | | | | | | | | | | | | | | |
| | | | | 3.86 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | |
| | | End of Hole | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | |



W.L. in Screen at Elev. 56.49m Apr. 28, 1992

DATA BY: J. COBURN, DISC 9

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: K.A.M.
 CHECKED: K.A.M.

PROJECT: 9212707

RECORD OF BOREHOLE G15-92

SHEET 1 OF 1

LOCATION: See Plan

BORING DATE: April 10, 1992

DATUM: CROOKLE

DIP:

SAMPLER/HAMMER: G3 4KG/BBOP, 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY, k_{ov} | | | | INSTALLATIONS | | | |
|--------------------|---|--|-------------|-----------------|--------|------|-----------------------|------------|--------------|------------------------|----------------------------------|--|--|---|---------------|--|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWCOUNT | RECOVERY % | LAB. TESTING | % | | | | % | | | | |
| | | | | | | | | | | WATER CONTENT, PERCENT | | | | % | | | | |
| 0 | | Ground Surface | | 58.55 | | | | | | | | | | | | | | |
| | | TOPSOIL | | 58.43 | | | | | | | | | | | | | | |
| | | Yellow brown SILTY fine SAND | | 58.19 | | | | | | | | | | | | | | |
| | | | | 58.12 | | | | | | | | | | | | | | |
| 1 | | | | 54.14 | | | | | | | | | | | | | | |
| 2 | Power Auger 30mm Diam. (Yellow Stem) | Loose brown to grey fine SAND, occasional silty sand seam | | 54.14 | | 1 | 50 | 7 | | | | | | | | | | |
| 3 | | Grey SILTY CLAY, occasional red brown layer | | 52.82 | | 2 | 50 | 1 | | | | | | | | | | |
| 4 | | End of Hole | | 52.82 | | | | | | | | | | | | | | |



DATA INPUT: JACOBISA, DBCC 9

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: KAM

CHECKED: KAM

PROJECT: 0212707

RECORD OF BOREHOLE G16-92

SHEET 1 OF 1

LOCATION: Goe Flap

BORING DATE: April 10, 1992

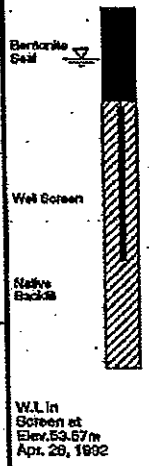
DATUM: Goider

UHP

SAMPLER/HAMMER: 63510/DROP: 760 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | | | HYDRAULIC CONDUCTIVITY, K_v cm/s | | | | INSTALLATIONS | | |
|--------------------|---|---|-------------|-----------------|--------|------|------------|-----------------------|--------------|------------------------|--|------------------------------------|--|---|--|---------------|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | % | | | | % | | | | |
| | | | | | | | | | | WATER CONTENT, PERCENT | | | | | | | | |
| 0 | | Ground Surface | | 53.88 0.00 | | | | | | | | | | | | | | |
| 1 | Cross Annot. 200mm diam. (Narrow Stem) | Brown to grey fine SAND | | 52.31 1.55 | | | | | | | | | | | | | | |
| 2 | | Gray SILTY CLAY, occasional red brown layer | | 51.73 2.13 | | 1 | 50 | DO | WH | | | | | | | | | |
| 3 | | End of Hole | | | | | | | | | | | | | | | | |



DATA INPUT: J.CORRISA, DISC 9

DEPTH SCALE (ALONG HOLE)
1 to 40

Golder Associates

LOGGED: K.A.M.
CHECKED: KAM

PROJECT: 9212723

RECORD OF BOREHOLE G17-92

SHEET 1 OF 1

LOCATION: Sea Plan

BORING DATE: Oct 6, 1992

DATUM: Geodetic

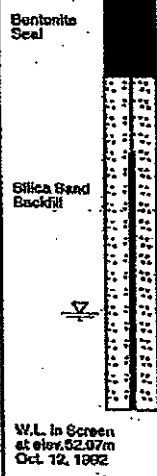
SAMPLER: HAMMER, 63.5kg; DROP: 760mm

PENETRATION TEST: HAMMER, 63.5kg; DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|-----------------------|--|--|-------------|-----------------------|--------|---|------------|----------------|---------|------------------------------------|-------|--|--|----------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | WATER CONTENT, PERCENT | | | | | |
| | | | | | | | | cu, kPa | cv, kPa | wp, % | wl, % | | | | |
| 0 | | Ground Surface | | 53.92 | | | | | | | | | | | |
| | | Dark brown sandy TOPSOIL | | 0.90 | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 0.97 | | | | | | | | | | | |
| 1 | Power Auger 200mm Diam. (Below 0.97m) | Grey brown SILTY CLAY, occasional red brown layer (Weathered Crust) | | 53.25 | | | | | | | | | | | |
| | | | | | 0.67 | | | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 52.48 | | | | | | | | | | | |
| | | | | 1.48 | 1 | DO | WH | | | | | | | | |
| 2 | | | | 51.48 | | | | | | | | | | | |
| | | End of Hole | | 2.44 | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |

DATA INPUT: J. COBISA, DISC 11



DEPTH SCALE
1 to 40

Golder Associates

LOGGED: K.A.M.
CHECKED:

PROJECT: 021-2729

LOCATION: See Plan

SAMPLER: HAMMER 63.5kg, DROP 760mm

RECORD OF BOREHOLE G18-92

BORING DATE: Oct. 5, 1992

PENETRATION TEST: HAMMER 63.5kg, DROP 760mm

SHEET 1 OF 1

DATUM: Geodetic



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | HYDRAULIC CONDUCTIVITY, k, cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|---------------|---|-------------|-----------|-----------|--|---------------------------------|------------|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. (m) | DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | | |
| 0 | | Ground Surface | | 55.40 | 0.00 | | | | | |
| | | Dark brown sandy TOPSOIL | | 55.10 | 0.30 | | | | | |
| | | Brown to grey fine SAND | | 53.64 | 1.46 | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 53.27 | 2.13 | 1 | 50 | WH | | |
| | | End of Hole | | | | | | | | |

DEPTH SCALE

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: KAY

DATA INPUT: JACOBIA, DISC 11

Bentonite Seal

Silica Sand Backfill

W.L. in Screen at elev. 54.23m Oct. 12, 1992

PROJECT: 0212729

RECORD OF BOREHOLE G19-02

SHEET 1 OF 1

LOCATION: G-4 Plot

BORING DATE: OCT 5, 1982

DATUM: Goolett

SAMPLED HAMMER: 63.5kg; DROP: 760mm

PENETRATION TEST HAMMER: 63.5kg; DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION - RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, K, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|-----------------------|---------------|---|-------------|-----------------------|--------|--|------------|----------------|--------------|---------------------------------|---|----|--|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | WATER CONTENT, PERCENT | | | | | |
| | | | | | | | | cu, kPa | cm.V - U - O | Wp | W | Wl | | | |
| 0 | | Ground Surface | | 59.18 | | | | | | | | | | | |
| | | Yellow brown SILTY fine SAND | | 0.00 58.98 0.21 | | | | | | | | | | | Bentonite Seal |
| 1 | | Very loose to loose brown fine SAND | | | | | | | | | | | | | Native Backfill |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 55.47 3.72 | | | | | | | | | | | |
| | | End of Hole | | 54.62 4.57 | | | | | | | | | | | |

DATA INPUT: J. COBISA, DISC 11

W.L. in Screen at elev. 59.17m
Oct. 12, 1982

DEPTH SCALE

1 to 40

Golder Associates

LOGGED: K.A.M.

CHECKED: [Signature]

PROJECT: 02107720

RECORD OF BOREHOLE G20-92

SHEET 1 OF 1

LOCATION: See Plan

BORING DATE: Oct 5, 1992

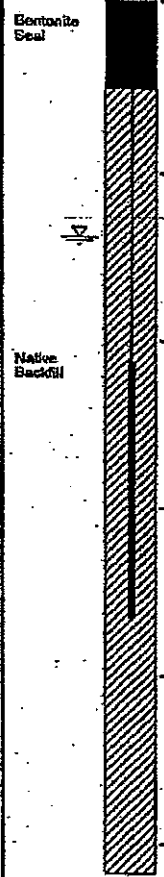
DATUM: Goodrich

SAMPLER: HAMMER 63.5kg; DROP: 760mm

PENETRATION TEST: HAMMER 63.5kg; DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | HYDRAULIC CONDUCTIVITY, K cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | | | | | |
|-----------------------|---------------|--|-------------|-----------------------|--------|---|----------------|-----------------------------------|----------------------|----------------------------|---|------------------------|--|----|--|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH | | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | Cu, kPa | | c _v , kPa | | | Wp | | Wa | | |
| 0 | | Ground Surface | | 59.67 | | | | | | | | | | | | |
| | | Dark brown sandy TOPSOIL | | 0.03 | | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 59.33 | | | | | | | | | | | | |
| | | | | 0.34 | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | |
| 2 | | Very loose to compact brown fine SAND | | | 1 | SS | 15 | | | | | | | | | |
| 3 | | | | | 2 | SS | 4 | | | | | | | | | |
| 4 | | | | | 3 | SS | 3 | | | | | | | | | |
| 5 | | Grey SILTY CLAY, occasional red brown layer | | 55.40 | | | | | | | | | | | | |
| | | | | 4.27 | | | | | | | | | | | | |
| | | | | | 4 | DO | WR | | | | | | | | | |
| | | End of Hole | | 54.49 | | | | | | | | | | | | |
| | | | | 5.18 | | | | | | | | | | | | |



W.L. in Screen
at elev. 58.23m
Oct. 12, 1992

DATA INPUT: JCSBIBA, DISC 11

DEPTH SCALE
1 to 40

Golder Associates

LOGGED: K.A.M.
CHECKED: K.A.M.

PROJECT: 0412724

RECORD OF BOREHOLE G21-94

SHEET 1 OF 1

LOCATION: See Plan

BORING DATE: July 21, 1994

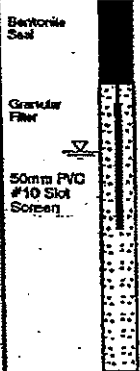
DATUM: BGS 66

DIP:

SAMPLER/HAMMER: GS-51g; DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | GAS CONCENTRATION (%) | | HYDRAULIC CONDUCTIVITY, K, cm/s | | INSTALLATIONS |
|--------------------|--|--|-------------|-----------------|--------|------|-----------------------|------------|---------------------------------|-------|---------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | LEL % | |
| 0 | | Ground Surface | | 55.18 | | | | | | | |
| | | Dark brown sandy TOPSOIL | | 0.00 | | | | | | | |
| | | | | 54.88 | | | | | | | |
| | | | | 0.30 | | | | | | | |
| 1 | Packer Auger 200mm Dia. (Hollow Stem) | Loosa brown to grey fine SAND | | | 1 | 50 | 100 | | | | |
| | | | | 53.50 | | | | | | | |
| | | | | 1.68 | | | | | | | |
| 2 | | Grey SILTY CLAY, occasional red brown seam | | | 2 | 50 | 100 | | | | |
| | | | | 52.44 | | | | | | | |
| | | | | 2.74 | | | | | | | |
| 3 | | End of Hole | | | | | | | | | |



W.L. in Screen at Elev. 54.08m Sept. 8, 1994

DATA INPUT: Clark & S. Lyngdon

DEPTH SCALE (ALONG HOLE)

1 to 50

Golder Associates

LOGGED: D.J.S

CHECKED: KAM

PROJECT: 9412723

LOCATION: Gas Plant

DIP

RECORD OF BOREHOLE G22-94

BOHRING DATE: July 26, 1994

SAMPLER/HAMMER: 63-HK(DROP) 760 mm

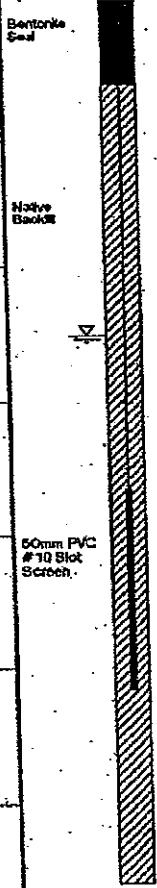
SHEET 3 OF 3

DATUM: GDA84



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION | | HYDRAULIC CONDUCTIVITY | | INSTALLATIONS |
|--------------------|---------------|---|-----------------------------------|---------|------|------------------------|--------------|-------------------|--|------------------------|--|---------------|
| | | DESCRIPTION | BTRATA PLOT ELEV. DEPTH (m) | NUMBER | TYPE | BLOGN/JM RECOVERY % | LAB. TESTING | LEL % | | K _{sat} | WATER CONTENT, PERCENT Wp - W _p - W _L | |
| 0 | | Ground Surface | 60.96 | | | | | | | | | |
| | | Sandy TOPSOIL | 0.03 | | | | | | | | | |
| | | Brown SANDY SILT | 0.43 | | | | | | | | | |
| | | | 60.53 | | | | | | | | | |
| | | Brown SILTY fine SAND | 0.43 | | | | | | | | | |
| | | | 59.09 | | | | | | | | | |
| 1 | | | 1.00 | | | | | | | | | |
| 2 | | | | 1 | 50 | DO | 9 | | | | | |
| | | Loose to compact brown to grey stratified fine SAND | | 2 | 50 | DO | 11 | | | | | |
| | | | | 3 | 50 | DO | 4 | | | | | |
| | | | | 4 | 50 | DO | 4 | | | | | |
| | | | | 5 | 50 | DO | 11 | | | | | |
| | | | 55.66 | | | | | | | | | |
| | | | 5.30 | | | | | | | | | |
| | | Grey and red brown SILTY CLAY | | 6 | 50 | DO | 4 | | | | | |
| | | | | 7 | 50 | DO | 2 | | | | | |
| | | | 54.41 | | | | | | | | | |
| | | End of Hole | 8.55 | | | | | | | | | |

Power Auger
200mm diam (below 31m)



W.L. in
Screen at
Elev. 58.61m
Sept. 8, 1994

DATA INPUT: CHX: 10, 6, 4, 10, 10m

DEPTH SCALE (ALONG HOLE)

1 to 50.

Golder Associates

LOGGED: D.J.S
CHECKED: KAM

PROJECT: 111-729

RECORD OF BOREHOLE G23-94

SHEET 1 OF 1

LOCATION: Gas Plant

BORING DATE: July 26, 1994

DATUM: Geoid

DP:

SAMPLER/HAMMER: GS-510; DROP: 750 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | HYDRAULIC CONDUCTIVITY, k_c cm/s | | INSTALLATIONS |
|--------------------|---------------|--|-------------|-----------------|--------|------|------------|-----------------------|--------------|------------------------------------|-------|---------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | LEL % | UCL % | |
| 0 | | Ground Surface | | 61.02 | | | | | | | | |
| | | Dark brown silty TOPSOIL | | 0.00 | | | | | | | | Bentonite Seal |
| | | Brown SANDY SILT | | 50.47 | | | | | | | | |
| | | | | 0.56 | | | | | | | | |
| | | | | 60.26 | | | | | | | | |
| | | | | 0.78 | | | | | | | | |
| 1 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| | | Very loose to compact brown stratified fine SAND | | | | | | | | | | Natrye Seals |
| | | | | | 1 | 50 | 10 | | | | | |
| | | | | | 2 | 50 | 11 | | | | | |
| | | | | | 3 | 50 | 8 | | | | | |
| | | | | | 4 | 50 | 8 | | | | | |
| | | | | | 5 | 50 | 6 | | | | | |
| | | | | | 6 | 50 | 2 | | | | | 50mm PVC #10 Slot Screen |
| | | | | | 7 | 50 | PM | | | | | |
| 6 | | Grey SILTY CLAY, occasional red brown seam | | 55.14 | | | | | | | | |
| | | | | 5.88 | | | | | | | | |
| 7 | | End of Hole | | 64.31 | | | | | | | | Screen sondeed in Sept. 6, 1994 |
| | | | | 6.71 | | | | | | | | |

DATA INPUT: Dak 19, S. L. (garden)

DEPTH SCALE (ALONG HOLE)

1 to 50

Golder Associates

LOGGED: D.J.S

CHECKED: KAM

PROJECT: 44-272

RECORD OF BOREHOLE G24-94

SHEET 1 OF 1

LOCATION: G-4-R-1

BOHING DATE: July 27, 1994

DATUM: Goodale

DIP:

SAMPLER/HAMMER: 63-5kg DROP 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | | GAS CONCENTRATION | | HYDRAULIC CONDUCTIVITY | | INSTALLATIONS |
|--------------------|---|---|-------------|-----------------------|--------|------|---------|------------|-------------------|-------|------------------------|--------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOW/3m | RECOVERY % | LAB. TESTING | LEL % | WATER CONTENT, PERCENT | K cm/s | |
| 0 | Power Auger 200mm Diam (Hollow Stem) | Ground Surface | | 58.69 | | | | | | | | | Bentonite Seal Native Backfill 50mm PVC #10 Slot Screen W.L. in Screen at Elev. 57.84m Sept. 6, 1894 |
| | | Dark brown sandy silt, some gravel (FILL) | | 0.00 58.68 0.21 | | | | | | | | | |
| 1 | | Loose brown stratified fine SAND | | | | 1 | 0.5 | 0.0 | | | | | |
| 2 | | | | | | 2 | 0.5 | 0.0 | | | | | |
| 3 | | | | | | 3 | 0.5 | 0.0 | | | | | |
| 4 | | Grey SILTY CLAY, occasional red brown layer | | 55.69 3.20 | 4 | 0.5 | 0.0 | | | | | | |
| 4.27 | | End of Hole | | 54.62 4.27 | 5 | 0.5 | 0.0 | | | | | | |

DATA INPUT: Dick W. S. / 10/1/94

DEPTH SCALE (ALONG HOLE)

1 to 50

Golder Associates

LOGGED: D.J.S

CHECKED: KAM

PROJECT: 841-2729

RECORD OF BOREHOLE G25-94

SHEET 1 OF 1

LOCATION: G-6A P1A1

BOREHOLE DATE: July 27, 1994

DATUM: BAHAMIC

UIC:

SAMPLER/BAMMER: 03-51g; DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | GAS CONCENTRATION (%) | | HYDRAULIC CONDUCTIVITY, K_{ov} | | INSTALLATIONS |
|--------------------|---------------|---|-------------|-----------------|--------|------|-----------------------|------------|----------------------------------|-------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWERS/blows | RECOVERY % | LAB. TESTING | LEL % | |
| 0 | | Ground Surface | | 81.34 | | | | | | | <p>Bentonite Seal</p> <p>Native</p> <p>50mm PVC #10 Slot Screen</p> <p>W.L. in Screen at Elev. 57.67m Sept. 6, 1994</p> |
| | | Dark brown silty TOPSOIL | | 81.10 | | | | | | | |
| | | Brown SANDY SILT | | 80.61 | | | | | | | |
| 1 | | | | 80.73 | | | | | | | |
| | | Brown SILTY fine SAND | | 59.68 | | | | | | | |
| 2 | | | | 1.68 | 1 | 50 | 10 | DO | | | |
| | | Very loose to compact brown stratified fine SAND, occasional silty fine sand layer with depth | | | 2 | 50 | 10 | DO | | | |
| 3 | | | | | | 3 | 50 | 10 | DO | | |
| 4 | | | | | | 4 | 50 | 10 | DO | | |
| 5 | | | | | | 5 | 50 | 10 | DO | | |
| | | Grey SILTY CLAY, occasional red brown layer | | 58.07 | | | | | | | |
| 6 | | | | 5.27 | 5 | 50 | 10 | DO | | | |
| | | End of Hole | | 54.78 | | | | | | | |
| 7 | | | | 8.65 | 6 | 50 | 10 | DO | | | |

DATA INPUT: DICK 19, 6/16/94

DEPTH SCALE (ALONG HOLE)

1 to 50

Golder Associates

LOGGED: D.J.S

CHECKED: KAM

PROJECT: 0412729

RECORD OF BOREHOLE G26-94

SHEET 1 OF 1

LOCATION: See Plan

BORING DATE: July 27, 1994

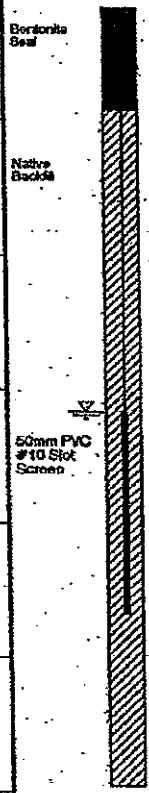
DATUM: GGDaltic

DIP:

SAMPLER/HANDEL: 63 5kg DBCP, 760 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | GAS CONCENTRATION (%) | | HYDRAULIC CONDUCTIVITY, K _{sat} | | INSTALLATIONS |
|--------------------|---------------|--|-----------------|---------|------|-----------|------------|-----------------------|-------|--|--|---------------|
| | | DESCRIPTION | STRATA PLOT | NUMBER | TYPE | BLOW/30cm | RECOVERY % | LAB. TESTING | LEL % | WATER CONTENT, PERCENT | | |
| | | | ELEV. DEPTH (m) | | | | | | | W _p - W _l | | |
| 0 | | Ground Surface | 60.89 | | | | | | | | | |
| | | Dark brown silty TOPSOIL | 0.00 | | | | | | | | | |
| | | Brown SILTY fine SAND | 0.09 | | | | | | | | | |
| | | | 60.10 | | | | | | | | | |
| | | | 0.73 | | | | | | | | | |
| 1 | | Loose to compact stratified fine SAND, occasional thin silty sand layer with depth | | 1 | 50 | 14 | | | | | | |
| 2 | | | | 2 | 50 | 15 | | | | | | |
| 3 | | | | 3 | 50 | 9 | | | | | | |
| 4 | | | | 4 | 50 | 5 | | | | | | |
| 5 | | | | 58.26 | | | | | | | | |
| | | Grey SILTY CLAY, occasional red brown layer | 4.57 | | | | | | | | | |
| | | | 59.04 | | | | | | | | | |
| | | End of Hole | 6.79 | | | | | | | | | |



W.L. in Screen at Elev. 57.55m Sept. 6, 1994

DATA INPUT: Disk 19, S. Leighton

DEPTH SCALE (ALONG HOLE)
1 to 50

Golder Associates

LOGGED: D.J.S.
CHECKED: KAM

PROJECT: 071-2000
 LOCATION: Geo Plan
 GIP

RECORD OF BOREHOLE G27-97

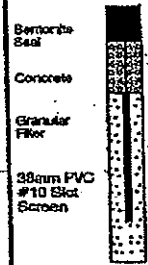
BORING DATE: May 25, 1997

SHEET 1 OF 1
 DATUM: Geo Plan

SAMPLER/HAMMER: G3-510; DROP: 700 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | COMBUSTIBLE VAPOUR (%) | HYDRAULIC CONDUCTIVITY (k cm/s) | INSTALLATIONS | | | | |
|--------------------|---|---|-------------|--------------------------------|--------|------|------------|------------------------|---------------------------------|---------------|---------------------------------------|---|---|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/30cm | RECOVERY % | LAB. TESTING | Micro-Tp ppm | WATER CONTENT, PERCENT (Wp - CW - LW) | A | B | C |
| 0 | Power Auger 300mm Diam (follow 50mm) | Ground Surface | | 53.87 | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 0.00 53.76 | | | | | | | | | | |
| | | Loose brown to grey fine to medium SAND | | 0.21 | | | | | | | | | | |
| 1 | | Grey SILTY CLAY | | 52.86 1.31 52.45 1.82 | | | | | | | | | | |
| 2 | | End of Hole | | | | | | | | | | | | |



DATA INPUT: 09727-83.0.dj/b.l.

DEPTH SCALE (ALONG HOLE)

Golder Associates

LOGGED: D.J.S
 CHECKED: BCS

PROJECT: 97152439

LOCATION: See Plan

DIP:

RECORD OF BOREHOLE G28-97

BORING DATE: May 28, 1997

SAMPEER HAMMER: 63.5 kg; DBCP: 780 mm

SHEET 1 OF 1

DATUM: See Plan



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | COMBUSTIBLE VAPOUR (%) | HYDRAULIC CONDUCTIVITY, k_{sat} | INSTALLATIONS | | | | |
|--------------------|---|-------------------------|-------------|-----------------|--------|------|------------|------------------------|-----------------------------------|---------------|---|---|---|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLCH/SD/SP | RECOVERY % | LAG TESTING | Micro-Tip ppm | WATER CONTENT, PERCENT WpL — $\frac{W}{100 - W}$ — W | A | B | C |
| 0 | Power Auger Bottom Drain (Below 8ft) | Ground Surface | | 83.70 | | | | | | | | | | |
| 0.00 | | | | | | | | | | | | | | |
| 1 | | Brown to grey fine SAND | | | | | | | | | | | | |
| 1.62 | | End of Hole | | 82.18 | | | | | | | | | | |
| 1.62 | | | | 1.62 | | | | | | | | | | |



DATA INPUT: C872A-93B.drb/L

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: D.I.S

CHECKED: BCS

PROJECT: B71-2050

RECORD OF BOREHOLE G29-97

SHEET 1 OF 1

LOCATION: See Plan

BORING DATE: May 20, 1997

DATUM: See Plan

RIP:

SAMPLER/HAMMER: 63.5kg / DROP: 760 mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | | COMBUSTIBLE VAPOUR (%) | HYDRAULIC CONDUCTIVITY, k_f cm/s | INSTALLATIONS | | | | |
|--------------------|---------------|--|-------------|--------------------------------|--------|------|------------|------------------------|------------------------------------|---------------|---|---|---|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOW/COUNT | RECOVERY % | LAB. TESTING | Micro-Tip ppm | WATER CONTENT, PERCENT Wp - $\frac{W}{W_s}$ - Ww | A | B | C |
| 0 | | Ground Surface | | 60.82 | | | | | | | | | | |
| | | Dark brown silty TOPSOIL | | 0.00 | | | | | | | | | | |
| | | Brown SANDY SILT | | 60.97 0.65 60.18 0.76 | | | | | | | | | | |
| 1 | | Very loose to compact brown stratified fine SAND | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | Grey SILTY CLAY, occasional red brown seam | | 55.04 5.88 54.82 | | | | | | | | | | |
| | | End of Hole | | 6.10 | | | | | | | | | | |

DATA INPUT: C:\B720-530.d\B71.S

DEPTH SCALE (ALONG HOLE)

1 to 40

Golder Associates

LOGGED: D.J.S

CHECKED: BCS

PROJECT: 064577B

RECORD OF BOREHOLE G30-97

SHEET 1 OF 1

LOCATION: 049 P115

DRILLING DATE: 04-1-1997

DATUM: G.A.M.B.C.

SAMPLER: HAMMER 0.3kg DROP: 700mm

PENETRATION TEST: HAMMER 0.3kg DROP: 700mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, K cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|---------------|--|-------------|-----------------|--------|--|------------|-------------------------------------|--|--------------------------------|--|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH C _u , kPa | | WATER CONTENT, PERCENT | | | |
| 0 | | Ground Surface | | 53.39 | | | | | | | | | |
| 0.5 | | Brown fine SAND | | 52.11 | | | | | | | | | Bentonite Seal |
| 1.0 | | | | 51.29 | | | | | | | | | Native Backfill |
| 2.0 | | Firm red brown and grey SILTY CLAY occasional sandy silt seam | | 49.59 | | | | | | | | | |
| 3.0 | | | | 48.81 | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | |
| 5.0 | | | | | | | | | | | | | |
| 6.0 | | | | | | | | | | | | | |
| 7.0 | | Firm to stiff grey SILTY CLAY, trace black organic matter | | 47.91 | | | | | | | | | |
| 8.0 | | | | 47.13 | | | | | | | | | |
| 9.0 | | | | | | | | | | | | | |
| 10.0 | | | | | | | | | | | | | |
| 11.0 | | | | | | | | | | | | | |
| 12.0 | | Stiff grey SILTY CLAY, trace black organic matter | | 46.99 | | | | | | | | | |
| 13.0 | | | | 46.41 | | | | | | | | | |
| 14.0 | | Compact dark grey sandy silt, some gravel and clay, occasional cobble and fine sand layer (GLACIAL TILL) | | 45.15 | 1 | SO | | | | | | | |
| 15.0 | | | | 44.24 | | DO | | | | | | | |
| 16.0 | | End of Hole | | | | | | | | | | | |

DATA INPUT: 037030775.ct/bs.L

DEPTH SCALE

1 to 100

Golder Associates

LOGGED: D.J.S

CHECKED:

PROJECT: BR12724

RECORD OF BOREHOLE G31-98

SHEET 1 OF 3

LOCATION: REFER TO PLAN

LOGGING DATE: APRIL 7, 1998

DATUM: D.M.G.M.

SAMPLER: HAMMER, 63 GR, DROP: 750mm

PENETRATION TEST: HAMMER, 63 GR, DROP: 750mm



| DEPTH SCALE METERS | BORING METHOD | SOIL PROFILE | | SAMPLER | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, K_f cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|---------------|---|-------------|-----------------|--------|--|------------|----------------------------|--|------------------------------------|--|------------------------|--|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH C_u , kPa | | | | WATER CONTENT, PERCENT | | | |
| 0 | | GROUND SURFACE | | 53.30 | | | | | | | | | | | |
| | | Dark brown TOPSOIL | | 0.03 | | | | | | | | | | | |
| | | Red-brown, fine SAND, some silt. | | 52.87 | | | | | | | | | | | |
| | | | | 0.43 | | | | | | | | | | | |
| 1 | | Very loose to loose, brown to grey stratified SILTY fine SAND. | | | 1 | SS | 7 | | | | | | | | |
| | | | | | | 2 | SS | 1 | | | | | | | |
| | | | | | | 3 | SS | 3 | | | | | | | |
| | | | | | | 4 | SS | 2 | | | | | | | |
| 4 | | Very loose to loose, brown to grey fine SAND, trace silt. | | 48.78 | | | | | | | | | | | |
| | | | | | 3.61 | | | | | | | | | | |
| | | | | | | 3 | SS | 7 | | | | | | | |
| | | | | | | 6 | SS | 3 | | | | | | | |
| 6 | | Very stiff to stiff, grey, occ. red-brown layer SILTY CLAY, trace black organic matter. | | 48.90 | | | | | | | | | | | |
| | | | | | 6.40 | | | | | | | | | | |
| | | | | | | 4 | TS | PH | | | | | | | |
| | | | | | | 10 | TS | PH | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

CHIEF POWER AUGER
100mm I.D. HOLLOW STEM AUGERS

GROUT

C/g
2.84

MH

CONTINUED ON NEXT PAGE

DATA INPUT: #8 JUNE 2/98

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: 9812726

RECORD OF BOREHOLE G31-98

SHEET 2 OF 3

LOCATION: REFER TO PLAN

BORING DATE: APRIL 7/98

DATUM: geodetic

SAMPLER/HAMMER: 63.0kg DROP: 750mm

PENETRATION TEST HAMMER: 63.0kg DROP: 750mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | HYDRAULIC CONDUCTIVITY, K, cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|--|---------------------------------------|--|-----------------|-------------|--|------------------------|---|--|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER TYPE | BLOWS/0.3m | SHEAR STRENGTH Cu, kPa | WATER CONTENT, PERCENT Wp | | | |
| 10 | CASE & POWER AUGER 100mm ID, FOLLOW BIT & TUBES | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | |
| 11 | | | | 40.04 | 11 | DO | 1 | | | | |
| 12 | | | | 39.13 | 12 | TP | PH | | | | |
| 13 | | | | 13.28 | | | | | | | |
| 14 | | | Very stiff, grey layered SILTY CLAY and CLAYEY SILT. | | 39.13 | 13 | DO | 2 | | | |
| 15 | | | Loose, grey SANDY SILT. | | 14.17 | | | | | | |
| 16 | | | | | 38.52 | | | | | | |
| 17 | | | Dense, dark grey sandy silt, some gravel, trace clay, occ. cobble & sand seam. (GLACIAL TILL) | | 14.78 | | | | | | |
| 18 | | | | | 36.17 | 14 | DO | 33 | | | |
| 19 | | | | | 17.13 | 15 | DO | 51 | | | |
| 20 | | | Fresh to fairly weathered, dark grey SHALE, occ. fracture with some clayey material along fracture surfaces. | | | 16 | RC | DD | T.C.P. = 70% S.C.P. = 0% R.C.D. = 0% | | |
| 21 | | | | | 17 | RC | DD | T.C.P. = 84% S.C.P. = 23% R.C.D. = 0% | | | |
| 22 | | | | 34.90 | | | | | | | |
| 23 | | Fresh dark grey SHALE, occ. fracture. | | 18.40 | | | | | | | |
| 24 | | | | | 18 | RC | DD | T.C.P. = 88% S.C.P. = 0% R.C.D. = 65% | | | |
| 25 | | | | | 19 | RC | DD | | | | |
| 26 | | CONTINUED ON NEXT PAGE | | | | | | | | | |

DATA INPUT: PS JUNE 2/98

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: 0112726

RECORD OF BOREHOLE G31-98

SHEET 3 OF 3

LOCATION: REFER TO PLAN

BORING DATE: APRIL 7/87/98

DATUM: G.S.M. (m)

SAMPLED HAMMER: 63.5kg, DROP: 760mm

PENETRATION TEST HAMMER: 63.5kg, DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | HYDRAULIC CONDUCTIVITY, K_v cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|--------------------|----------------------------|------------------------------|-------------|-----------------|--------|------|--|-------------------|------------------------------------|------------------------|-------------------------|--------------------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | WATER CONTENT, PERCENT | | | |
| | | | | | | | | mm.V. - \ominus | U - O | Wp | | | W |
| 3 | STANDARD DRILL 760 CORE | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 20 | | END OF BOREHOLE | | 32.76 20.54 | 12 | RS | DS | | | | | | |
| 21 | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | |

T.C.R. = 10%
 S.C.R. = 57%
 R.O.C.T. = 35%

DATA INPUT: PS-JUNE 2/98

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: 9812720

RECORD OF BOREHOLE G32-98

SHEET 1 OF 3

LOCATION: REFER TO PLAN

BORING DATE: APRIL 13/99

DATUM: CG-2000

SAMPLER: HAMMER, 63.5kg, DROP, 760mm

PENETRATION TEST: HAMMER, 63.5kg, DROP, 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | STRATA PLOT | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, K, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|-----------------------|---------------|---|---------------|-------------|---------|------|---|------|---|-----|------------------------------------|---|---|---|----------------------------|---|
| | | DESCRIPTION | ELEV. | | NUMBER | TYPE | SHEAR STRENGTH | | | | WATER CONTENT, PERCENT | | | | | |
| | | | DEPTH (m) | | | | CU, kPa | rm.V | + | U-O | Wp | W | W | W | | |
| 0 | | GROUND SURFACE Dark brown TOPSOIL | 80.87 0.00 | | | | | | | | | | | | | |
| 1 | | Loose, brown SILTY fine SAND, occ. fine sand seam. | 0.15 | 1 | DO | 7 | | | | | | | | | | |
| 2 | | | | 2 | DO | 6 | | | | | | | | | | |
| 3 | | | | 3 | DO | 6 | | | | | | | | | | |
| 4 | | | | 4 | DO | 6 | | | | | | | | | | |
| 5 | | Loose to very loose, brown, fine SAND, trace silt, stratified, occ. thin silty sand layer. | 1.63 | 5 | DO | 6 | | | | | | | | | | |
| 6 | | | | 6 | DO | 6 | | | | | | | | | | |
| 7 | | | | 7 | DO | 3 | | | | | | | | | | |
| 8 | | Very stiff, grey SILTY CLAY. | 54.63 0.25 | 8 | DO | 1 | | | | | | | | | | |
| 9 | | | | 9 | DO | PH | | | | | | | | | | |
| 10 | | Loose, grey SILTY fine SAND. | 53.82 6.95 | 10 | DO | 7 | | | | | | | | | | |
| 11 | | | | 11 | DO | WH | | | | | | | | | | |
| 12 | | Firm to stiff, grey SILTY CLAY, occ. red-brown layer, stratified, trace black organic matter. | 51.85 8.02 | 12 | DO | | | | | | | | | | | |
| 13 | | | | 13 | DO | | | | | | | | | | | |
| 14 | | CONTINUED ON NEXT PAGE | | | | | | | | | | | | | | |

DATA INPUT: PG JUNE 2/98

DEPTH SCALE
1 to 50

Golder Associates

LOGGED: J.S.
CHECKED: KM

PROJECT: 0012726

RECORD OF BOREHOLE G32-98

SHEET 2 OF 3

LOCATION: REFER TO PLAN

BOHRING DATE: APRIL 13, 98

DATUM: GADMEI

SAMPLER: HAMMER 60 CKG, DROP 750MM

PENETRATION TEST: HAMMER 63 CKG, DROP 750MM



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | HYDRAULIC CONDUCTIVITY, $k_{ov/s}$ | | ADDITIONAL LAB TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|---|------------------------------|-------------|-----------------|--------|--|------------|------------------------------------|------------------------------|------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH C_u , kPa | WATER CONTENT, PERCENT W_p | | |
| 10 | CAKE 35 POWER AUGER 100mm I.D. HOLLOW STEM AUGER | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | |
| 11 | | | | 12 | 73 TP | PH | | | | | C |
| 12 | | | | 13 | 73 TP | PH | | | | | C |
| 13 | | | | 14 | 50 DO | WH | | | | | |
| 14 | | | | 15 | 73 TP | PH | | | | | |
| 15 | | | | 16 | 50 DO | WH | | | | | |
| 16 | | | | 17 | 73 TP | PH | | | | | |
| 17 | | | | 18 | 50 DO | WH | | | | | |
| 18 | | | | 19 | 73 TP | PH | | | | | |
| 19 | | | | 20 | 50 DO | 2 | | | | | |
| 20 | | | | 21 | 50 DO | 2 | | | | | |

Firm to stiff, grey SILTY CLAY, occ. red-brown layer, stratified, trace black organic matter.

Stiff, grey layered SILTY CLAY and CLAYEY SILT.

GROUT

DATA INPUT: PG JUNE 2/98

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

CONTINUED ON NEXT PAGE

PROJECT: 0812725

RECORD OF BOREHOLE G32-98

SHEET 1 OF 1

LOCATION: REFER TO PLAN

BOHRING DATE: APRIL 13/98

DATUM: CGCRK

SAMPLER: HAMMER 63.6kg; DROP: 760mm

PENETRATION TEST: HAMMER 63.6kg; DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, K_{cs}/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|--------------------|--|---|-------------|-----------------|--------|--|----------------|--|-----------|------------------------------------|------------------------|--|----|-------------------------|--------------------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH | | | | WATER CONTENT, PERCENT | | | | | |
| | | | | | | | nat.V - + | | rem.V - @ | | U - O | | Wp | | | W |
| 18 | CASE & POWER AUGER 100mm I.D. HOLLOW STEM AUGER | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | | | | |
| 21 | | Compact, gray SANDY SILT, scattered, trace gravel. | | 40.30 20.57 | 18 | DS | | | | | | | | | | |
| 22 | ROTARY DRILL HW CASING | Dense, dark grey sandy silt, some gravel, trace clay, occ. cobble & boulder. (GLACIAL TILL) | | 39.50 21.34 | 19 | DS | | | | | | | | | | |
| 23 | | | | | 20 | RS | | | | | | | | | | |
| 24 | | | | | 21 | RS | | | | | | | | | | |
| 25 | | | | | 22 | RS | | | | | | | | | | |
| 26 | | | | | 23 | RS | | | | | | | | | | |
| 27 | | | | | 24 | RS | | | | | | | | | | |
| 28 | | | | | 25 | RS | | | | | | | | | | |
| 29 | NO CORE | Fresh to fairly weathered dark grey SHALE; fractured. | | 35.46 25.39 | 26 | DS | | | | | | | | | | |
| 30 | | | | | 27 | RS | | | | | | | | | | |
| 31 | | | | | 28 | RS | | | | | | | | | | |
| 32 | | | | | 29 | RS | | | | | | | | | | |
| 33 | NO CORE | Fresh dark grey SHALE; occ. fracture. | | 33.99 29.88 | 30 | DS | | | | | | | | | | |
| 34 | | | | | 31 | RS | | | | | | | | | | |
| 35 | NO CORE | Fresh dark grey SHALE; occ. fracture. | | 32.71 28.16 | 32 | DS | | | | | | | | | | |
| 36 | | | | | 33 | RS | | | | | | | | | | |
| 37 | END OF BOREHOLE | | | | | | | | | | | | | | | |

BENTONITE SEAL

NATIVE BACKFILL

25mm PVC #10 SLOT SCREEN
SCREEN B

BENTONITE SEAL

GRANULAR FILTER

25mm PVC #10 SLOT SCREEN
SCREEN A

DATA INPUT: PG JUNE 2/98

DEPTH SCALE
1 to 50

Golder Associates

LOGGED: J.S.
CHECKED: KM

PROJECT: RB1-226

RECORD OF BOREHOLE G33-98

SHEET 01-3

LOCATION: REFER TO PLAN

BORING DATE: APRIL 10, 1999

DATUM: Geodetic

SAMPLER: HAMMER, 63.6kg, DROP: 760mm

PENETRATION TEST HAMMER, 63.6kg, DROP: 760mm



| DEPTH SCALE METERS | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|-----------------------|---------------|---|-------------|-----------------------|--------|---|---------------------------|-----------|-------|------------------------------------|------------------------|----|----|----------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH Cu, kPa | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | | nat.V - + | Q - ● | | | | | | |
| | | | | | | | | rem.V - ● | U - ○ | | | Wp | W | W | |
| | | | | | | | | 20 | 40 | 60 | 80 | 20 | 40 | 60 | 80 |
| 0 | | GROUND SURFACE | | 53.88 | | | | | | | | | | | |
| 0 | | Dark brown sandy TOPSOIL | | 0.00 | | | | | | | | | | | |
| 0 | | | | 53.34 | | | | | | | | | | | |
| 0 | | | | 0.24 | | | | | | | | | | | |
| 1 | | Brown and dark brown, stratified fine SAND, some silt and silty sand seams. | | | | | | | | | | | | | |
| 1 | | | | 51.78 | 1 | DO | | | | | | | | | |
| 1 | | | | 1.83 | | | | | | | | | | | |
| 2 | | Loose, brown, stratified fine SAND, trace silt. | | | | | | | | | | | | | |
| 2 | | | | | 2 | DO | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | 3 | DO | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | 49.92 | | | | | | | | | | | |
| 4 | | | | 3.66 | | | | | | | | | | | |
| 4 | | | | | 4 | PH | | | | | | | | CIU | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | Stiff, grey, occ. red-brown layer SILTY CLAY, trace black organic matter. | | | | | | | | | | | | | |
| 5 | | | | | 5 | PH | | | | | | | | Chg 2.68 CRU | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | 6 | PH | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | 7 | PH | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | 8 | PH | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | 9 | PH | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | 10 | PH | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

DATA INPUT: PB JUNE 2/86

CONTINUED ON NEXT PAGE

DEPTH SCALE
1 to 50

Golder Associates

LOGGED: J.S.
CHECKED: KM

PROJECT: 8412726

RECORD OF BOREHOLE G33-98

SHEET 2 OF 3

LOCATION: REFER TO PLAN

BORING DATE: APRIL 10/17/98

DATUM: LOCAL

SAMPLER/HAMMER: G3 (kg) DROF, 760mm

PENETRATION TEST/HAMMER: R3 (kg) DROF, 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k_f cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|------------------------------|--|--------------|---|---|--------------|--|----------------|--------------|-------------|------------------------------------|------------------------|-----|-----|----------------------------|---|-----|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH | | | | WATER CONTENT, PERCENT | | | | | |
| | | | | | | | C_u , kPa | $c_m V$ | U | $U-O$ | W_p | W | W | | | W |
| CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | | | | | | | |
| 10 | ONE 33 POWER AUGER 150mm I.D. HOLLOW STEM AUGER | | Stiff, grey, occ. red-brown layer SILTY CLAY, trace black organic matter. | 8 | 50 | PM | | | | | | | | | | |
| 11 | | | | 9 | 75 | PH | | | | | | | | | | |
| 12 | | | | 10 | 50 | PM | | | | | | | | | | |
| 13 | | | | 11 | 50 | PM | | | | | | | | | | |
| 14 | | | | 12 | 50 | PM | | | | | | | | | | |
| 15 | | | | 13 | 50 | PM | | | | | | | | | | |
| 16 | | | | 14 | 50 | PM | | | | | | | | | | |
| 17 | | | | 15 | 50 | PM | | | | | | | | | | |
| 18 | | | | 16 | 50 | PM | | | | | | | | | | |
| 19 | | | | 17 | 50 | PM | | | | | | | | | | |
| 20 | | | | 18 | 50 | PM | | | | | | | | | | |
| 10 | ROTARY DRILL 1 1/2" CASINGS NO CORE | | Compact, grey SANDY SILT, trace gravel. | 39.10 | 14.48 | | | | | | | | | | | |
| 15 | | | | 39.04 | 15.54 | 11 | 50 | 6 | | | | | | | | |
| 16 | | | | Loose to compact, dark grey sandy silt, some gravel, clay and cobbles. (GLACIAL TILL) | 12 | 50 | 23 | | | | | | | | | |
| 17 | | | | | 13 | 50 | DD | T.C.R. = 53% | | | | | | | | |
| 18 | | | | | 14 | 50 | DD | T.C.R. = 64% | | | | | | | | |
| 19 | | | | 15 | 50 | DD | T.C.R. = 60% | | | | | | | | | |
| 20 | | | | 16 | 50 | DD | T.C.R. = 88% | R.O.D. = 0% | S.G.R. = 0% | | | | | | | |
| 21 | | | | 17 | 50 | DD | T.C.R. = 96% | R.O.D. = 0% | S.G.R. = 0% | | | | | | | |
| 22 | | | | 18 | 50 | DD | T.C.R. = 96% | R.O.D. = 18% | S.G.R. = 0% | | | | | | | |
| 23 | 19 | 50 | DD | T.C.R. = 96% | R.O.D. = 18% | S.G.R. = 0% | | | | | | | | | | |
| CONTINUED ON NEXT PAGE | | | | | | | | | | | | | | | | |

DATA INPUT: PS JUNE 2/98

GROUT

BENTONITE SEAL

MH
GRANULAR FILTER
38mm PVC #10 SLOT SCREEN
SCREEN B

BENTONITE SEAL

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: 981-2720

RECORD OF BOREHOLE G33-98

SHEET 4 OF 3



LOCATION: REFER TO PLAN

BORING DATE: APRIL 16, 1998

DATUM: GEOID

SAMPLER/HAMMER: G16 (1) / DROP: 700mm

PENETRATION TEST/HAMMER: RS (1) / DROP: 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | HYDRAULIC CONDUCTIVITY, k_v cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|-------------------------|--|----------------|-----------------|--------|------|---|----------------------------|------------------------------------|-------------------|-------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH C_u , kPa | rem.V. + rem.V. - | rem.V. - rem.V. + | | |
| 20 | ROTARY DRILL NO CORE | CONTINUED FROM PREVIOUS PAGE | | | | | | | | | | |
| 21 | | Fresh dark grey SHALE; occ. fracture. | | 18 | 23 | 00 | T.C.R. = 88% S.G.R. = 80% R.O.D. = 79% | | | | | GRANULAR FILTER 32mm PVC #10 SLOT SCREEN SCREEN A |
| 22 | | | | 19 | 23 | 00 | T.C.R. = 100% S.G.R. = 80% R.O.D. = 60% | | | | | |
| | END OF BOREHOLE | | 31.51 22.07 | | | | | | | | | |

DATA INPUT: PG JUNE 2/88

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: BR17726

RECORD OF BOREHOLE G34-98

SHEET 0-1

LOCATION: REFER TO PLAN

BORING DATE: APRIL 2008

DATUM: BGS440

SAMPLER: HAMMER, 63 Kg, DROP: 760mm

PENETRATION TEST: HAMMER, 63 Kg, DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANOPIPE INSTALLATION |
|--------------------|---|--------------------------------|--------------------------------|-----------------|--------|--|----------------|--|--|--------------------------------|------------------------|--|--|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH | | | | WATER CONTENT, PERCENT | | | | |
| | | | | | | | | | | | | | | | |
| 0 | | GROUND SURFACE | | 53.06 0.00 | | | | | | | | | | | |
| 1 | CHIEF'S POWER AUGER 103mm I.D. HOLLOW STEM AUGER | Brown fine SAND | [Strata Plot: Dotted pattern] | 51.11 | | | | | | | | | | | |
| 2 | | | | 1.00 | 1 | 80 DO | 2 | | | | | | | | |
| 3 | | Grey and red-brown SILTY CLAY. | [Strata Plot: Hatched pattern] | 49.55 | | | | | | | | | | | |
| 4 | 2 | | | 80 DO | PM | | | | | | | | | | |
| 4 | | END OF BOREHOLE | | 49.55 3.61 | | | | | | | | | | | |

DATA INPUT: P2 JUNE 2008

DEPTH SCALE

1 to 50

Golder Associates

LOGGED: J.S.

CHECKED: KM

PROJECT: 8012720

RECORD OF BOREHOLE G35-98

SHEET 1 OF 1

LOCATION: REFER TO PLAN

BORING DATE: APRIL 21/99

DATUM: G.S.D.M.C.

SAMPLER/HAMMER: 63.6kg; DROP: 760mm

PENETRATION TEST/HAMMER: 63.6kg; DROP: 760mm



| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | STRATA PLOT | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | HYDRAULIC CONDUCTIVITY, K, cm/s | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|-----------------------|---------------|-----------------------------------|-----------------------|-------------|---------|------|---|------------------------------------|--|----------------------------|---|
| | | DESCRIPTION | ELEV. DEPTH (m) | | NUMBER | TYPE | | SHEAR STRENGTH | | | |
| | | | | | | | | | | | |
| 0 | | GROUND SURFACE | 50.01 | | | | | | | | |
| | | Brown sandy TOPSOIL | 0.00 | | | | | | | | |
| | | | 0.15 | | | | | | | | |
| 1 | | | | | | | | | | | |
| 2 | | Brown fine SAND | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | Grey and red-brown SILTY CLAY. | 52.84 | | | | | | | | |
| | | | 4.27 | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 8 | | END OF BOREHOLE | 52.03 | | | | | | | | |
| | | | 4.88 | | | | | | | | |

DATA INPUT: PS JUNE 2006

DEPTH SCALE
1 to 50

Golder Associates

LOGGED: J.S.
CHECKED: KM

PROJECT: 011-2839 5000

RECORD OF BOREHOLE: G36-01

SHEET 1 OF 1

LOCATION: See Site Plan

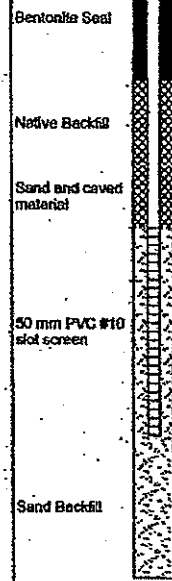
BORING DATE: May 4, 2001

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k_v cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION |
|--------------------|---|--|-------------|-----------------|--------|--|------------|----------------------------|-------------|------------------------------------|---|----|---|-------------------------|--------------------------------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH C_u , kPa | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | max V. rem V. | + rem V. U. | Wp | W | Wp | W | | |
| 0 | | GROUND SURFACE | | 58.05 | | | | | | | | | | | |
| | | Yellow brown SILTY SAND | | 9.00 | | | | | | | | | | | |
| | | Very loose to loose brown fine SAND | | 0.15 | | | | | | | | | | | |
| 1 | POWER AUGER 200 mm diam. (Follow Blng) | | | | 1 | SO DO | 6 | | | | | | | | |
| 2 | | | | | 2 | SO DO | 2 | | | | | | | | |
| 3 | | | | | 3 | SO DO | 3 | | | | | | | | |
| 4 | | | | | 4 | SO DO | WH | | | | | | | | |
| | | Grey SILTY CLAY occasional red-brown layer | | 3.72 | | | | | | | | | | | |
| | | END OF BOREHOLE | | 51.48 | | | | | | | | | | | |
| 5 | | | | 4.57 | | | | | | | | | | | |



BOREHOLE: 011-2839.GPJ_GLDP_CAN.GDT 185102 Ken Taylor

DEPTH SCALE
1:50



LOGGED: D.J.S.
CHECKED: _____

PROJECT: 011-2839 5000

RECORD OF BOREHOLE: G37-01

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: May 4, 2001

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PREZOMETER OR STANDPIPE INSTALLATION | |
|--------------------|---------------|-------------------------------------|-------------|-----------------|--------|------|--|----------------|----|----|---------------------------------|-----------------------|---------------|-----------------|-------------------------|--------------------------------------|-----------------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | 20 | 40 | 60 | 80 | nat V. + C. ● | rem V. @ U. ○ | 10 ¹ | | | 10 ² |
| 0 | | GROUND SURFACE | | 88.44 | | | | | | | | | | | | | |
| | | Brown SILTY SAND and SANDY SILT | | 88.00 | | | | | | | | | | | | | |
| | | Brown SILTY fine SAND | | 88.07 | | | | | | | | | | | | | |
| | | | | 88.37 | | | | | | | | | | | | | |
| | | Very loose to loose brown fine SAND | | 88.65 | | | | | | | | | | | | | |
| | | | | 88.78 | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | | END OF BOREHOLE | | 84.34 | | | | | | | | | | | | | |
| | | | | 81.0 | | | | | | | | | | | | | |

BOREHOLE 011-2839.GPJ GLDR CAN.GDT 16/2/02 Ken Taylor

DEPTH SCALE
1:50



LOGGED: D.J.S.
CHECKED:

PROJECT: 03-1120-726-5000

RECORD OF BOREHOLE: G38-03

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: July 28, 2003

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | | |
|--------------------|---|--|---|-----------------|---------------|--|------------|----------------|--|---------------------------------|--|-----------------------|--|------------------------|--------------------------------------|----|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | 20 | | 40 | | 60 | | | | 80 | |
| 0 | | GROUND SURFACE | | 53.78 | | | | | | | | | | | | | |
| | | Loose dark brown sandy silt, some gravel, trace cobbles and roots (FILL) | | 6.56 | | | | | | | | | | | | | |
| | | Loose grey stratified fine SAND | | 6.75 | | | | | | | | | | | | | |
| 1 | Pencil Auger 200mm Diam. (Hollow Stem) | | | | 1 | 50 | 6 | | | | | | | | | | |
| | | | | | 2 | 50 | 4 | | | | | | | | | | |
| 2 | | | | | 3 | 50 | 3 | | | | | | | | | | |
| | | | | | 4 | 50 | 2 | | | | | | | | | | |
| 3 | | | Very stiff SILTY CLAY, occasional sand seam | | 55.80 2.80 | | | | | | | | | | | | |
| | | | Very stiff pink grey SILTY CLAY | | 55.40 3.36 | 4 | 50 | 2 | | | | | | | | | |
| 4 | | | | | 5 | 50 | 2 | | | | | | | | | | |
| | | End of Borehole | | 54.51 4.27 | | | | | | | | | | | | | |

Bentonite Seal

Silica Sand

50mm Diam. PVC #10 Slot Screen

Bentonite Seal

Native Backfill

Water level in screen at elev. 57.65m Aug. 25, 2003

BOREHOLE 03-1120-726-5000.GPJ, GLDR, CAN, GDT, 17/3/04

DEPTH SCALE
1 : 50



LOGGED: S.I.
CHECKED: G.D.C.

PROJECT: 07-1122-0124-5000

RECORD OF BOREHOLE: G39-07

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: May 23, 2007

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|-----------------------|--|----------------------------|-------------|-----------------|--------|----------|--|------------------------|----|----|---------------------------------|-----------------------|------|-------|-------------------------|---|----|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH Cu, kPa | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | 20 | 40 | 60 | 80 | nat V. rem V. | + U. | Q - O | | | Wp |
| 0 | | GROUND SURFACE | | 49.13 | | | | | | | | | | | | | |
| | | Dark brown organic TOPSOIL | | 0.00 | | | | | | | | | | | | | |
| | | Loose brown fine SAND | | 48.78 0.34 | | | | | | | | | | | | | |
| 1 | Power Auger 200mm Diam. (Hollow Stem) | | | 47.55 1.59 | 1 | SO DO | 6 | | | | | | | | | Flush mount casing set in borehole | |
| | | Grey SILTY CLAY | | | 2 | SO DO | 1 | | | | | | | | | Native Backfill and Silica Sand mixture | |
| 2 | | | | 47.00 2.13 | | | | | | | | | | | | 50mm Diam. PVC #10 Slot Screen | |
| | | End of Borehole | | | | | | | | | | | | | | Native Backfill | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

MIS-BHS 001, 07-1122-0124-5000.GPJ, GLDR, CAN/GDT, 6/5/07, JM

DEPTH SCALE

1 : 25



LOGGED: D.J.S.

CHECKED: SM

PROJECT: 07-1122-0124-5000

RECORD OF BOREHOLE: G40-07

SHEET 1 OF 1

LOCATION: See Site Plan

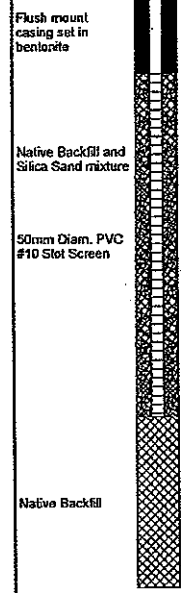
BORING DATE: May 23, 2007

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|-----------------------|--|-----------------------------------|-------------|-----------------|--------|--|----------------|---|-------------------------|---------------------------------|-----------------------|--|---|------------------------|--------------------------------------|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | SHEAR STRENGTH | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | Cu, kPa | | nat V. + rem V. ⊕ U - ⊙ | | Wp | | W | | | |
| 0 | | GROUND SURFACE | | 49.60 | | | | | | | | | | | | |
| | | Dark brown organic TOPSOIL | | 0.00 | | | | | | | | | | | | |
| | | | | 49.33 | | | | | | | | | | | | |
| | | Loose brown fine SAND, trace silt | | 0.27 | | | | | | | | | | | | |
| 1 | Power Auger 200mm Diam. (Hollow Stem) | | | 48.26 | 1 | 50 | DO | 5 | | | | | | | | |
| | | Grey SILTY CLAY | | 1.34 | | | | | | | | | | | | |
| 2 | | | | | 2 | 50 | DO | 1 | | | | | | | | |
| | | End of Borehole | | 47.47 | | | | | | | | | | | | |
| | | | | 2.13 | | | | | | | | | | | | |



MIS-BHS 001 07-1122-0124-5000.GPJ GAL-MISS.GDT 25/3/08 JIM

DEPTH SCALE
1:25



LOGGED: D.J.S.
CHECKED: SM

PROJECT: 10-1127-0065

RECORD OF BOREHOLE: G41-10

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: May 5, 2010

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | |
|--------------------|--|--|----------------------------------|-----------------|--------|----------|--|----------------|----|---------------|---------------------------------|-----------------------|------------------|------------------|-------------------------|--------------------------------------|---|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | Cu, kPa | | nat V. rem V. | | Q - U | | Wp | | | W |
| | | GROUND SURFACE | | | | | 20 | 40 | 60 | 80 | 10 ⁻⁸ | 10 ⁻⁶ | 10 ⁻⁴ | 10 ⁻² | | | |
| 0 | Power Auger 200mm Diam. (Hollow Stem) | Very loose black to dark brown organic matter (PEAT) | | 0.00 | 1 | 50 DO WH | | | | | | | | | | Bentonite Seal | |
| | | | | | | 2 | 50 DO WH | | | | | | | | | Silica Sand | |
| 1 | | | | | | 3 | 50 DO WH | | | | | | | | | 50mm Diam. PVC #10 Slot Screen | |
| 2 | | | Firm grey SILTY CLAY, trace sand | | 2.13 | 4 | 50 DO PM | | | | | | | | | Cave | |
| | | End of Borehole | | 2.44 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

MIS-BHS 001 1011270065-6000.GPJ GAL-MIS.GDT 3/22/11 JM

DEPTH SCALE
1 : 25



LOGGED: R.I.
CHECKED: LEB

PROJECT: 10-1127-0065

RECORD OF BOREHOLE: G42-10

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: May 5, 2010

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | | |
|-----------------------|--|---|-------------|-----------------|--------|--|------------|----------------|----|---------------------------------|------------------|-----------------------|------------------|-------------------------|--------------------------------------|---|--|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | Cu, kPa | | nat V. rem V. | | + | | | | - | |
| 0 | | GROUND SURFACE | | 0.00 | | | 20 | 40 | 60 | 80 | 10 ⁻⁶ | 10 ⁻⁵ | 10 ⁻⁴ | 10 ⁻³ | | | |
| | | Very loose black to dark brown organic matter (PEAT) | | | 1 | 50 DO WH | | | | | | | | | Bentonite Seal | | |
| | | Very stiff grey brown SILTY CLAY, trace sand and rootlets (Weathered Crust) | | 0.59 | 2 | 50 DO 7 | | | | | | | | | Silica Sand | | |
| 1 | Power Auger 200mm Diam. (Hollow Stem) | | | | 3 | 50 DO 6 | | | | | | | | | 50mm Diam. PVC #10 Slot Screen | | |
| | | Very stiff grey SILTY CLAY, trace sand and red brown silty clay bands | | 1.83 | 4 | 50 DO 7 | | | | | | | | | Cave | | |
| 2 | | End of Borehole | | 2.44 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |

MIS-BHS 001 1011270065-6000.GPJ GAL-MIS.GDT 3/22/11 JM

DEPTH SCALE

1:25



LOGGED: R.I.

CHECKED: LEB

PROJECT: 11-1127-0064

RECORD OF BOREHOLE: G43-11

SHEET 1 OF 1

LOCATION: See Site Plan

BORING DATE: July 21, 2011

DATUM: Geodetic

| DEPTH SCALE METRES | BORING METHOD | SOIL PROFILE | | SAMPLES | | DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m | | | | HYDRAULIC CONDUCTIVITY, k, cm/s | | | | ADDITIONAL LAB. TESTING | PIEZOMETER OR STANDPIPE INSTALLATION | | |
|--------------------|---------------|--|-------------|-----------------|--------|--|------------|------------------------|----|---------------------------------|----|-----------------------|-------|-------------------------|--------------------------------------|----------|-------|
| | | DESCRIPTION | STRATA PLOT | ELEV. DEPTH (m) | NUMBER | TYPE | BLOWS/0.3m | SHEAR STRENGTH Cu, kPa | | | | WATER CONTENT PERCENT | | | | | |
| | | | | | | | | 20 | 40 | 60 | 80 | nat V. + | Q - ● | | | rem V. ⊕ | U - ○ |
| 0 | Geoprobe | GROUND SURFACE | | 47.77 | | | | | | | | | | | | | |
| | | Dark brown to black organic matter, trace sand and silt (PEAT) | | 0.00 | 1 | 50 DO | | | | | | | | | | | |
| 1 | | Grey brown SILTY CLAY, some organic matter | | 46.65 | | | | | | | | | | | | | |
| | | Grey brown SILTY CLAY, trace organic matter and fresh roots | | 1.12 | | | | | | | | | | | | | |
| 2 | | | | 1.22 | 2 | 50 DO | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | |
| | | | | | 3 | 50 DO | | | | | | | | | | | |
| 3 | | End of Borehole | | 44.67 | | | | | | | | | | | | | |
| | | | | 3.10 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |

Bentonite Seal

Silica Sand

32 mm Diam. PVC #10 Slot Screen

W.L. at 0.75 m depth on August 22, 2011

MIS-BHS 001 1111270064-7000.GPJ GAL-MIS.GDT 02/06/12 JEM

DEPTH SCALE

1 : 50



LOGGED: C.H.M

CHECKED: L.E.B.

5605743

Municipality 56002 Con. CON 04

Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

RUSSELL

County or District: Present Russell; Township/Borough/City/Town/Village: Rockland - Plurice; Con block tract survey, etc.: Conc. 4; Lot: 15; Address: Chemin - Lalonde; Date completed: 22/10/02; Boursset - ont

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions). Table with columns: General colour, Most common material, Other materials, General description, Depth - feet (From, To). Rows include yellow sand, grey clay, grey gravel, and black SHAPE.

31, 32

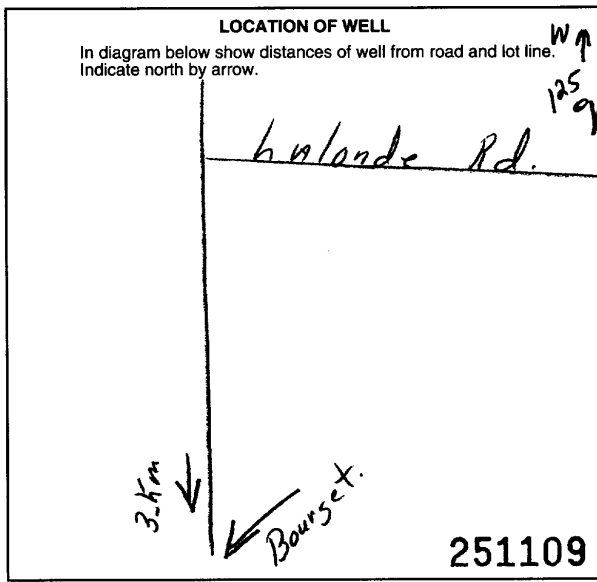
41 WATER RECORD. Table with columns: Water found at - feet, Kind of water. Rows include 65, 90, 20-23, 25-28, 30-33.

51 CASING & OPEN HOLE RECORD. Table with columns: Inside diam inches, Material, Wall thickness inches, Depth - feet (From, To). Rows include 6 1/2, 6, 24-25.

SCREEN. Table with columns: Sizes of opening (Slot No.), Diameter inches, Length feet, Material and type, Depth at top of screen feet.

61 PLUGGING & SEALING RECORD. Table with columns: Depth set at - feet (From, To), Material and type (Cement grout, bentonite, etc.). Rows include 0-13, 18-21, 26-29.

71 PUMPING TEST. Includes Pumping test method (Pump, Bailer), Pumping rate (30 GPM), Duration of pumping (100 Mins), Static level, Water level end of pumping, Water levels during (14, 14, 14, 14 feet), Pump intake set at (100 feet), Recommended pump type (Deep), Recommended pump setting (90 feet), Recommended pump rate (15 GPM).



FINAL STATUS OF WELL (54), WATER USE (55-56), METHOD OF CONSTRUCTION (57). Includes checkboxes for various well types and construction methods.

Name of Well Contractor: DAB-WATER-WELL-Drilling 6006; Address: St-Albert ont; Name of Well Technician: Louis-Desnoyers 7-625; Signature of Technician/Contractor: Louis Desnoyers; Submission date: 24/10/02.

MINISTRY USE ONLY. Data source: 6006; Date received: NOV 06 2002; Date of inspection; Inspector; Remarks: CSS.ES2

APPENDIX E
Sampling Protocol

STANDARD SAMPLING PROTOCOL

The following is a description of the monitoring procedures and protocols used for groundwater and surface water monitoring for landfill sites.

Equipment Cleaning and Calibration

Regardless of matrix, prior to traveling to the site to be sampled, all equipment such as water level indicators and multi-parameter meters must be cleaned and calibrated as specified by the equipment manufacturer. Details of the cleaning and calibration should be recorded in the field notes.

GROUNDWATER

Monitoring Well Assessment

Provide an assessment of the status of all monitoring wells at the site.

Note any changes to the well and/or protective casing and record the physical condition of the well; and

Label all observation wells clearly and accurately on both the protective casing and well pipe.

Groundwater Monitoring

Maintain and use an accurate, up-to-date list of all observation wells to be monitored.

Check all field equipment for cleanliness; and

Wear personnel protective equipment as required (i.e., gloves, protective glasses, splash guards) during all phases of work, and follow any appropriate health and safety plan procedures.

Gas Detection in Wells (Prior to Measuring Water Levels)

Turn on gas meter and prepare for sampling atmospheric condition inside monitoring well.

Remove protective casing cover and well cap avoiding introduction of foreign materials into the well.

Immediately insert the probe attached to the gas meter into the well and wait for readings to stabilize.

Record the measurement in the appropriate column on the field data sheet or field book.

Water Level Measurements (Prior to Purging)

Record water level measurements prior to purging or sampling when required.

Do not move dedicated sampling devices such as the "Waterra" inertial pump prior to measuring the water level unless the well diameter dictates removal; reference the measurement from the same location each time (marked location or lowest point on pipe).

Lower the tape/probe into the wells - record the depth to water when the indicator (audible/visual) shows the water level has been reached.

Measure the water level twice by raising and lowering the tape/probe; and

Record the measurement to the nearest cm (0.5 cm) in the appropriate column on the field data sheet or field book.

Well Purging (Prior to Sampling)

The purpose of purging is to remove the stagnant water from within a monitor (removal of all stagnant water) so that a representative water sample may be collected. The procedures for purging are as follows.

Purge the well only after water levels have been confirmed.

Lift the tubing off the bottom of the well and "pump" at a minimum all stagnant water from the well into a graduated container such as a bucket, pail or cylinder so that the purged volume can be measured and recorded.

For low-yield wells, it is expected that either "no purge sampling techniques or low flow purging will be utilized (avoid purging well dry).

Under normal circumstances purged water may be discarded on the ground, away from the well to avoid the potential of water seeping back into the well; and

Allow a sufficient recovery period before sampling (not more than 48 hours).

Field Measurements

Field measurements are to be collected and recorded as outlined in the Environmental Compliance Approval or the approved monitoring program. Typically, these include at a minimum: temperature, pH and conductivity.

Well Sampling

Collect the water sample as soon as practical (not more than 48 hours) after purging starting at the least contaminated location and proceeding to the most contaminated.

Lift tubing and check valve off bottom of well to avoid introducing unnecessary sediment into the sample and transfer some representative sample water into a clean, well rinsed container to conduct measurements of field parameters.

Lift the tubing and gently transfer a sample into a clean container and thoroughly mix to form a single representative sample.

Transfer the sample into a pre-labelled sample bottle; labelling to consist of at a minimum, the project number, well ID and the date.

For samples that require filtering, attach the disposable filter onto the end of the tubing (typically a 0.45-micron membrane filter or as otherwise specified should be used).

Attempt to keep sample agitation to a minimum during sample transfer.

Store samples in a cooler, with ice packs to keep cool.

Transport samples to laboratory within the maximum hold time established by the laboratory (typically within a 48-hour period).

Volatile Organic Compound (VOC) Sampling

Volatile Organic Compounds (VOC) can be easily lost during sample collection, storage, and transportation. The following sampling and handling protocols are adhered to.

VOC samples are to be collected in special containers provided by the laboratory. These typically include glass vials, preferably amber, with a minimum capacity of 20 ml and sealed with Septum tops.

Vials must be filled just to overflowing in such a manner that no air bubbles pass through the vial as it is being filled (this is easier to accomplish by inserting a 4' length of ¼ " poly tubing into the existing Wattera tubing and filling the vial from the ¼" tubing).

Vials must then be sealed with the cap so that no air bubbles are entrapped within it; the septum is placed with the Teflon side face down toward the inside of the bottle.

Check for the presence of air bubbles by inverting the vial and tapping on hard surface; if air bubbles are present, discard the sample and re-sample.

All VOC samples must be preserved as specified by the laboratory (typically with 1 to 2 drops of Hydrochloric Acid (HCl)) and refrigerated or stored on ice until analysed; and

VOC samples should be submitted in duplicate at a ratio specified in the approved monitoring program (typically 1:10)

Surface Water Sampling (General)

Surface water samples should be collected at the same designated location during each sample event (do not collect samples from any station which is frozen, stagnant or otherwise not representative of normal conditions).

If you must stand in the stream, position yourself downstream of the sample location to avoid contaminating the sample with sediment, debris, and other floating materials.

All equipment must be thoroughly rinsed with distilled water at the beginning of each station to avoid cross-contamination.

Wear gloves as required to handle the sample bottles.

Fill all bottles using an unpreserved transfer bottle (to avoid overflowing pre-preserved bottles).

When sampling for dissolved metals, the sample must be filtered and placed in a separate metals bottle, while sampling for total metals, the sample is placed in a common bottle for metals that is provided by the laboratory.

Label and store all samples in the same manner as for groundwater samples; and

Conduct field measurements (these typically include temperature, pH, conductivity, Dissolved Oxygen and Flow).

Flow Measurements (General)

Discharge flow measurements must be taken at designated stations.

QA/QC Water Samples

A field quality assurance and quality control program for all monitoring events will be established as follows and or as dictated in the approved monitoring program.

Where groundwater or surface water samples are collected, and if stipulated in the approved monitoring program, a field blank in which a set of sample bottles is filled with distilled water at a known site or monitoring station is submitted to the laboratory for analysis along with the samples

Where VOC samples are taken, a trip blank, in which 1 set of VOC vials are filled with distilled water (at the laboratory or office) prior to going to the field and accompanies the sample bottles until they are returned to the lab; and

Duplicate of as outlined in the approved monitoring program or 1 duplicate for every 10 samples (do not identify the sample ID number to the laboratory, but have it recorded in the field notes) use the sampling technique as for observation wells.

SAMPLING

Station Sampling Order

The stations will be sampled beginning with those wells exhibiting the lowest chemical concentrations and then moving on to wells with greater chemical concentrations.

Monitoring Periods

The monitoring periods are as recommended in either the approved monitoring program or the Environmental Compliance Approval.

Analytical Parameters

Analysis will be as recommended in either the approved monitoring program and or the Environmental Compliance Approval.

Gas Detection of On-site Buildings

Gas detection in on-site buildings is to be included as part of regular monitoring.

APPENDIX F

Laboratory Certificate of Analysis

(PDF Only)

C.O.C.: G096132/096133/107193

REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Client I.D. | | G18-92 | G26-94 | P4-90 | G8-92C |
|----------------------------|-------|---------|------------------|--------------------|-------------|-------------|-------------|-------------|
| | | | Reference Method | Date/Site Analyzed | B23-03309-1 | B23-03309-2 | B23-03309-3 | B23-03309-4 |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 292 | 41 | 102 | 93 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 255 | 47 | 103 | 95 |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 371 | 57 | 116 | 97 |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 27.4 | 1.0 | 1.2 | 0.8 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | < 0.05 | < 0.05 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | 5.93 | < 0.05 | 0.09 | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | 50 | 9 | 9 | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 89.4 | 11.3 | 34.3 | 27.8 |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 16.7 | 3.21 | 4.07 | 5.70 |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 29.5 | 2.7 | 3.8 | 2.9 |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | 4.2 | 0.8 | 2.1 | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.04 | 0.04 | 0.05 | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.068 | 0.015 | 0.053 | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | < 0.0001 | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.174 | 0.009 | 0.019 | 0.012 |
| Cadmium | mg/L | 0.00010 | EPA 200.8 | 19-May-23/O | 0.000078 | < 0.000010 | < 0.000010 | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | < 0.001 | < 0.001 | < 0.001 | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0005 | 0.0001 | 0.0001 | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0301 | 0.0015 | 0.0047 | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.130 | 0.055 | 0.039 | 0.073 |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | 0.00005 | 0.00005 | 0.00008 | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.591 | 0.020 | 0.002 | 0.002 |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | < 0.00002 | < 0.00002 | < 0.00002 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0001 | < 0.0001 | 0.0002 | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | < 0.01 | < 0.01 | < 0.01 | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | 4.44 | 2.50 | 2.68 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | < 0.0001 | |



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Steve Garrett
 Director of Laboratory Services

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C.O.C.: G096132/096133/107193

REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc

1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Client I.D. | G18-92 | G26-94 | P4-90 | G8-92C |
|----------------|-------------|-------------|-------------|-------------|
| Sample I.D. | B23-03309-1 | B23-03309-2 | B23-03309-3 | B23-03309-4 |
| Date Collected | 03-May-23 | 03-May-23 | 03-May-23 | 03-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|--------------------------|---------|---------|------------------|--------------------|-----------|-----------|-----------|--------|
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.382 | 0.126 | 0.164 | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | 16.5 | 3.0 | 3.5 | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | < 0.00005 | < 0.00005 | < 0.00005 | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | < 0.005 | < 0.005 | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0004 | 0.0004 | 0.0008 | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | < 0.005 | < 0.005 | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | < 0.01 | < 0.01 | 0.07 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | 1.7 | 0.4 | 1.1 | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.002 | 0.022 | 0.033 | 0.010 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 0.28 | 4.58 | 0.46 | 2.16 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | < 0.001 | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | < 3 | < 3 | 5 | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 43 | 12 | 20 | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 12.1 | 2.8 | 4.6 | 2.4 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 7.33 | 1.17 | 2.28 | 1.97 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 7.26 | 0.969 | 2.27 | 1.99 |
| % Difference | % | | Calc. | 11-May-23/O | 0.477 | 9.22 | 0.253 | 0.598 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 1.01 | 1.20 | 1.01 | 0.988 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 661 | 108 | 222 | 190 |



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REPORT No. B23-03309 (i)

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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | G8-92B | G8-92A | P2-90 | G29-97 |
|----------------------------|-------|---------|------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | Sample I.D. | B23-03309-5 | B23-03309-6 | B23-03309-7 | B23-03309-8 |
| Date Collected | | | | | 03-May-23 | 03-May-23 | 04-May-23 | 04-May-23 | |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 62 | 27 | 49 | 494 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 276 | 599 | 104 | 431 | |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 346 | 734 | 260 | 560 | |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 14.2 | 47.2 | 16.5 | 9.9 | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | | < 0.05 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | | 3.73 | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | | | | 84 | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 11.2 | 3.74 | 12.2 | 145 | |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 8.31 | 4.28 | 4.49 | 32.1 | |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 119 | 312 | 80.8 | 24.4 | |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | | 1.8 | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | 0.09 | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | | 0.104 | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | < 0.0001 | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.280 | 0.618 | < 0.005 | 0.071 | |
| Cadmium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | 0.000165 | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | | | | < 0.001 | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | 0.0073 | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | 0.0083 | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.048 | 0.332 | 0.338 | 0.007 | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | | | | 0.00003 | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.010 | 0.013 | 0.007 | 4.83 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | | | | < 0.00002 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | 0.0003 | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | < 0.01 | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | 5.37 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | < 0.0001 | |



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REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23
 DATE REPORTED: 12-Jun-23
 SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: Clarence Rockland WDS
 P.O. NUMBER: 17-602C
 WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | G8-92B | G8-92A | P2-90 | G29-97 |
|--------------------------|---------|---------|------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | Sample I.D. | B23-03309-5 | B23-03309-6 | B23-03309-7 | B23-03309-8 |
| Date Collected | | | | | 03-May-23 | 03-May-23 | 04-May-23 | 04-May-23 | |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | | | 0.892 |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | | | 28.3 |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | | | | | < 0.00005 |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | | < 0.005 |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | | 0.0012 |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | | < 0.005 |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.09 | 0.32 | < 0.01 | | 0.02 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | | | | | 1.0 |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.282 | 1.27 | 0.017 | | 0.005 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 0.40 | 1.34 | 1.39 | | 1.34 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | | | | | < 0.001 |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | | | | | < 3 |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | | | | | 27 |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 7.4 | 35.5 | 2.5 | | 12.9 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 6.41 | 13.3 | 4.69 | | 10.9 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 6.55 | 14.3 | 4.52 | | 11.2 |
| % Difference | % | | Calc. | 11-May-23/O | 1.07 | 3.70 | 1.85 | | 1.38 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.979 | 0.929 | 1.04 | | 0.973 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 590 | 1216 | 445 | | 942 |



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Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Client I.D. | G32-98B | G32-98A | G38-03 | G36-01 |
|----------------|-------------|--------------|--------------|--------------|
| Sample I.D. | B23-03309-9 | B23-03309-10 | B23-03309-11 | B23-03309-12 |
| Date Collected | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|----------------------------|-------|---------|------------------|--------------------|-----------|-----------|-------|-------|
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 4 | 24 | 323 | 315 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 335 | 354 | 264 | 179 |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 448 | 491 | 325 | 363 |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 53.6 | 61.4 | 6.6 | 7.3 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | < 0.05 | | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | 0.08 | 0.05 | | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | < 1 | < 1 | | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 0.83 | 7.58 | 109 | 94.3 |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 0.58 | 1.33 | 12.3 | 19.2 |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 188 | 204 | 11.2 | 14.5 |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | 2.7 | 2.9 | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | < 0.01 | 0.72 | | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.062 | 0.091 | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | 0.0003 | | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.726 | 0.792 | 0.057 | 0.082 |
| Cadmium | mg/L | 0.00010 | EPA 200.8 | 19-May-23/O | < 0.00010 | 0.00018 | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | < 0.001 | 0.002 | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | 0.0012 | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0029 | 0.0026 | | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.014 | 1.34 | 19.7 | 0.006 |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | 0.00017 | 0.00292 | | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.002 | 0.173 | 2.18 | 0.002 |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | < 0.00002 | < 0.00002 | | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0005 | 0.0005 | | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | < 0.01 | < 0.01 | | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | 3.08 | 3.97 | | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | | |



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DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | | | |
|--------------------------|---------|---------|------------------|--------------------|-------------|-----------|---------|---------|
| | | | | | G32-98B | G32-98A | G38-03 | G36-01 |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.050 | 0.089 | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | 0.7 | 0.6 | | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | < 0.00005 | < 0.00005 | | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | 0.011 | | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0002 | 0.0037 | | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | < 0.005 | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.57 | 0.26 | 0.18 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | < 1 | 0.8 | | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.706 | 0.773 | < 0.002 | < 0.002 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 3.24 | 1.12 | 0.16 | 0.25 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | < 3 | 13 | | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 453 | 38 | | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 4.6 | 3.9 | 9.2 | 18.3 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 8.21 | 8.81 | 5.93 | 7.13 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 8.38 | 9.53 | 7.11 | 6.96 |
| % Difference | % | | Calc. | 11-May-23/O | 0.973 | 3.95 | 9.09 | 1.16 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.981 | 0.924 | 0.833 | 1.02 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 772 | 847 | 599 | 629 |



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DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | G37-01 | G20-92 | G21-94 | G12-92 |
|----------------------------|-------|---------|------------------|--------------------|-------------|--------------|--------------|--------------|--------------|
| | | | | | Sample I.D. | B23-03309-13 | B23-03309-14 | B23-03309-15 | B23-03309-16 |
| Date Collected | | | | | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 208 | 555 | 35 | 162 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 58 | 442 | 131 | 160 | |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 615 | 673 | 214 | 254 | |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 290 | 20.0 | 37.0 | 43.9 | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | | | < 0.05 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | 4.67 | | | < 0.05 | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | 68 | | | 24 | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 52.3 | 180 | 12.7 | 37.8 | |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 18.9 | 25.5 | 0.74 | 16.5 | |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 150 | 42.3 | 69.5 | 33.8 | |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | 0.8 | | | 1.8 | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.04 | | | 0.05 | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.114 | | | 0.023 | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | | | < 0.0001 | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.010 | 0.895 | 0.006 | 0.019 | |
| Cadmium | mg/L | 0.00010 | EPA 200.8 | 19-May-23/O | 0.000110 | | | < 0.00010 | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | < 0.001 | | | < 0.001 | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0003 | | | < 0.0001 | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0033 | | | 0.0012 | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.007 | 0.067 | 0.033 | 0.070 | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | 0.00016 | | | 0.00004 | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.045 | 0.200 | 0.001 | 0.052 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | < 0.00002 | | | < 0.00002 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | | | 0.0002 | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | < 0.01 | | | < 0.01 | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | 3.92 | | | 4.04 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | | | < 0.0001 | |



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Steve Garrett
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C.O.C.: G096132/096133/107193

REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | | | |
|--------------------------|---------|---------|------------------|--------------------|--------------|--------------|--------------|--------------|
| | | | | | G37-01 | G20-92 | G21-94 | G12-92 |
| Sample I.D. | | | | | B23-03309-13 | B23-03309-14 | B23-03309-15 | B23-03309-16 |
| Date Collected | | | | | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.664 | | | 0.124 |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | 21.9 | | | 7.1 |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | < 0.00005 | | | < 0.00005 |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | | | < 0.005 |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0002 | | | 0.0002 |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | | | < 0.005 |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | < 0.01 | 2.52 | 0.02 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | 0.1 | | | 0.2 |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | < 0.002 | < 0.002 | 0.037 | 0.017 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 0.09 | 0.42 | 3.15 | 0.30 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | | | < 0.001 |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | < 3 | | | < 3 |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 15 | | | 6 |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | < 0.2 | 20.9 | 3.5 | 1.3 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 11.1 | 12.3 | 3.97 | 4.93 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 10.7 | 13.8 | 3.73 | 4.77 |
| % Difference | % | | Calc. | 11-May-23/O | 1.79 | 5.43 | 3.11 | 1.72 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 1.04 | 0.897 | 1.06 | 1.03 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 1172 | 1121 | 385 | 479 |



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2378 Holly Lane
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 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | G43-11 | G42-10 | Dup #2 | G39-07 |
|----------------------------|-------|----------|------------------|--------------------|-------------|--------------|--------------|--------------|--------------|
| | | | | | Sample I.D. | B23-03309-17 | B23-03309-18 | B23-03309-19 | B23-03309-20 |
| Date Collected | | | | | 04-May-23 | 04-May-23 | 04-May-23 | 05-May-23 | |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 116 | 245 | 35 | 253 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 640 | 118 | 129 | 300 | |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 783 | 641 | 213 | 485 | |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 47.7 | 300 | 36.6 | 89.5 | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | < 0.05 | | | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | 0.23 | | | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | 11 | 27 | | | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 21.5 | 53.2 | 12.7 | 50.9 | |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 15.1 | 27.2 | 0.74 | 30.5 | |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 292 | 159 | 70.5 | 90.4 | |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | 9.9 | 2.6 | | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.02 | 0.25 | | | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.071 | 0.082 | | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | | | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 1.07 | 0.136 | < 0.005 | 0.838 | |
| Cadmium | mg/L | 0.000010 | EPA 200.8 | 19-May-23/O | < 0.000012 | 0.000055 | | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | < 0.001 | 0.002 | | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0006 | 0.0013 | | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0006 | 0.0094 | | | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.719 | 0.815 | 0.028 | 0.689 | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | < 0.00004 | 0.00035 | | | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.300 | 0.432 | 0.001 | 0.275 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | < 0.00002 | < 0.00002 | | | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0034 | 0.0005 | | | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | < 0.01 | < 0.01 | | | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | 9.00 | 3.50 | | | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | | | |



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REPORT No. B23-03309 (i)

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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | | | |
|--------------------------|---------|---------|------------------|--------------------|--------------|--------------|--------------|--------------|
| | | | | | G43-11 | G42-10 | Dup #2 | G39-07 |
| | | | | | B23-03309-17 | B23-03309-18 | B23-03309-19 | B23-03309-20 |
| | | | | | 04-May-23 | 04-May-23 | 04-May-23 | 05-May-23 |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.188 | 0.296 | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | 8.8 | 9.7 | | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | < 0.00005 | < 0.00005 | | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | 0.012 | | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0031 | 0.0030 | | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | < 0.005 | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.66 | 0.09 | < 0.01 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | 3.7 | 3.1 | | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 2.07 | 0.035 | 0.036 | 0.002 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 2.25 | 0.27 | 2.83 | 1.26 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | 8 | 4 | | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 95 | 106 | | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 41.1 | 12.9 | 3.3 | 9.8 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 14.4 | 11.4 | 3.92 | 9.20 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 15.4 | 11.9 | 3.77 | 9.28 |
| % Difference | % | | Calc. | 11-May-23/O | 3.38 | 2.39 | 1.84 | 0.454 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.935 | 0.953 | 1.04 | 0.991 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 1288 | 1240 | 384 | 874 |



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Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
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 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Client I.D. | G40-07 | G28-97 | G31-98A | G31-98B |
|----------------|--------------|--------------|--------------|--------------|
| Sample I.D. | B23-03309-21 | B23-03309-22 | B23-03309-23 | B23-03309-24 |
| Date Collected | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|----------------------------|-------|---------|------------------|--------------------|-------|-------|-------|-------|
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 131 | 129 | 9 | 11 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 170 | 294 | 399 | 411 |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 261 | 357 | 596 | 601 |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 43.8 | 54.4 | 102 | 97.3 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | | | | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 29.2 | 30.2 | 1.17 | 1.46 |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 14.1 | 12.9 | 1.42 | 1.71 |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 56.1 | 70.8 | 247 | 248 |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.502 | 1.18 | 0.979 | 0.962 |
| Cadmium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | | | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 1.57 | 0.134 | 0.021 | 0.063 |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | | | | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.292 | 0.023 | 0.004 | 0.005 |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | | | | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |



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DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Client I.D. | G40-07 | G28-97 | G31-98A | G31-98B |
|----------------|--------------|--------------|--------------|--------------|
| Sample I.D. | B23-03309-21 | B23-03309-22 | B23-03309-23 | B23-03309-24 |
| Date Collected | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|--------------------------|---------|---------|------------------|--------------------|-------|-------|-------|-------|
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | | | | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.03 | 0.05 | 0.35 | 0.43 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | | | | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.027 | 0.141 | 0.621 | 0.763 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 1.08 | 0.29 | 0.77 | 1.63 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | | | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | | | | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | | | | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 18.0 | 37.0 | 2.7 | 4.8 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 4.83 | 7.59 | 10.8 | 10.9 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 5.28 | 5.75 | 11.1 | 11.2 |
| % Difference | % | | Calc. | 11-May-23/O | 4.43 | 13.7 | 1.03 | 0.997 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.915 | 1.32 | 0.980 | 0.980 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 488 | 625 | 1034 | 1038 |



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DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| | | | | |
|-----------------------|--------------|--------------|--------------|--------------|
| Client I.D. | Field Blank | G17-92 | Scale House | G13-92 |
| Sample I.D. | B23-03309-25 | B23-03309-26 | B23-03309-27 | B23-03309-28 |
| Date Collected | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|----------------------------|-------|---------|------------------|--------------------|---------|-------|-----------|-------|
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | < 1 | 241 | 8 | 324 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | < 5 | 182 | 391 | 256 |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | | 340 | 597 | 394 |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | < 0.5 | 81.1 | 105 | 68.1 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | < 0.05 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | < 0.05 | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | | | < 1 | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | < 0.02 | 84.2 | 1.17 | 80.7 |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | < 0.02 | 7.48 | 1.35 | 29.7 |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | < 0.2 | 33.0 | 250 | 31.8 |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | 4.6 | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | < 0.01 | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | 0.097 | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | < 0.0001 | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.005 | 0.158 | 1.02 | 0.146 |
| Cadmium | mg/L | 0.00010 | EPA 200.8 | 19-May-23/O | | | < 0.00010 | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | | | < 0.001 | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | < 0.0001 | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | 0.0012 | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | 0.710 | 0.274 | 0.067 |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | | | 0.00013 | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | < 0.001 | 0.051 | 0.007 | 0.030 |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | | | < 0.00002 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | 0.0008 | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | < 0.01 | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | 2.65 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | < 0.0001 | |



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Steve Garrett
 Director of Laboratory Services

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C.O.C.: G096132/096133/107193

REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | Field Blank | G17-92 | Scale House | G13-92 |
|--------------------------|---------|---------|------------------|--------------------|-------------|-------------|-----------|-------------|-----------|
| | | | | | Sample I.D. | | | | |
| Date Collected | | | | | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | | 0.091 | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | | 0.2 | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | | | | < 0.00005 | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | < 0.005 | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | | 0.0001 | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | | < 0.005 | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | < 0.01 | < 0.01 | | 0.11 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | | | | 0.8 | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.002 | | 0.031 | 0.417 | 0.003 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | < 0.01 | | 0.29 | 0.48 | 0.12 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | | | | < 0.001 | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | | | | 12 | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | | | | 17 | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | < 0.2 | | 4.2 | 4.2 | 5.9 |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | | | 6.32 | 10.8 | 7.87 |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | | | 6.44 | 11.2 | 7.93 |
| % Difference | % | | Calc. | 11-May-23/O | | | 0.964 | 1.91 | 0.339 |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | | | 0.981 | 0.963 | 0.993 |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | | | 645 | 1038 | 740 |



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Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
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 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | G27-97 | P6-91 | P1-91 | P5B-91 |
|----------------------------|-------|---------|------------------|--------------------|-------------|--------------|--------------|--------------|--------------|
| | | | | | Sample I.D. | B23-03309-29 | B23-03309-30 | B23-03309-31 | B23-03309-32 |
| Date Collected | | | | | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 850 | 1140 | 1030 | 395 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 691 | 1760 | 1130 | 694 | |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 1319 | 2466 | 1413 | 811 | |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 252 | 343 | 159 | 29.2 | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | < 0.05 | < 0.05 | 0.22 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | < 0.05 | < 0.05 | < 0.05 | 2.08 | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | 173 | 78 | < 1 | 2 | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 231 | 323 | 276 | 129 | |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 66.4 | 80.3 | 83.6 | 17.7 | |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 163 | 371 | 168 | 45.4 | |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | 15.1 | 89.4 | 19.7 | 64.0 | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.14 | 0.15 | 0.13 | 0.07 | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.122 | 0.695 | 0.272 | 0.323 | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | 0.0001 | < 0.0001 | < 0.0001 | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.656 | 4.18 | 1.36 | 1.04 | |
| Cadmium | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000012 | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | 0.002 | 0.008 | 0.002 | 0.002 | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0011 | 0.0051 | 0.0019 | 0.0028 | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0149 | 0.0014 | 0.0013 | 0.0023 | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 2.50 | 7.88 | 20.4 | 35.1 | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | < 0.00009 | < 0.00009 | < 0.00009 | 0.00005 | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 1.01 | 9.27 | 5.38 | 2.21 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0006 | 0.0004 | < 0.0002 | 0.0002 | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.01 | 0.01 | < 0.01 | < 0.01 | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | 4.72 | 8.23 | 8.58 | 6.34 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | |



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REPORT No. B23-03309 (i)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | | | | |
|--------------------------|---------|---------|------------------|--------------------|----------------|--------------|--------------|--------------|-----------|
| | | | | | G27-97 | P6-91 | P1-91 | P5B-91 | |
| | | | | | B23-03309-29 | B23-03309-30 | B23-03309-31 | B23-03309-32 | |
| | | | | | Date Collected | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | 1.26 | 1.86 | 1.72 | 0.802 | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | 52.4 | 29.6 | 7.0 | 3.6 | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | 0.005 | < 0.005 | < 0.005 | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | 0.0036 | 0.0234 | 0.0069 | 0.0042 | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | < 0.005 | 0.006 | < 0.005 | < 0.005 | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.21 | 82.7 | 1.69 | 54.4 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | 2.8 | 98.5 | 4.7 | 58.7 | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | < 0.002 | < 0.002 | < 0.002 | 0.020 | |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 0.08 | 0.30 | 0.13 | 0.78 | |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | 4 | 14 | 7 | 5 | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 78 | 340 | 135 | 81 | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 8.6 | 89.0 | 9.8 | 13.4 | |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 24.5 | 46.5 | 27.1 | 14.9 | |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 24.7 | 47.8 | 29.9 | 17.3 | |
| % Difference | % | | Calc. | 11-May-23/O | 0.256 | 1.32 | 4.97 | 7.46 | |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.995 | 0.974 | 0.905 | 0.861 | |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 2091 | 3670 | 2225 | 1364 | |



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REPORT No. B23-03309 (i)

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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| | | | |
|-----------------------|--------------|--|--|
| Client I.D. | Dup #3 | | |
| Sample I.D. | B23-03309-33 | | |
| Date Collected | 05-May-23 | | |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | |
|----------------------------|-------|---------|------------------|--------------------|-------|--|--|
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 10-May-23/O | 8 | | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 409 | | |
| TDS(ion sum calc.) | mg/L | 1 | Calc. | 11-May-23/O | 600 | | |
| Chloride | mg/L | 0.5 | SM4110C | 11-May-23/O | 98.8 | | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 11-May-23/O | | | |
| Sulphate | mg/L | 1 | SM4110C | 11-May-23/O | | | |
| Calcium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 1.03 | | |
| Magnesium | mg/L | 0.02 | SM 3120 | 10-May-23/O | 1.25 | | |
| Sodium | mg/L | 0.2 | SM 3120 | 10-May-23/O | 247 | | |
| Potassium | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | |
| Barium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Boron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.953 | | |
| Cadmium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 19-May-23/O | | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Iron | mg/L | 0.005 | SM 3120 | 10-May-23/O | 0.060 | | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 19-May-23/O | | | |
| Manganese | mg/L | 0.001 | SM 3120 | 10-May-23/O | 0.004 | | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 19-May-23/O | | | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Nickel | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | |
| Silicon | mg/L | 0.01 | SM 3120 | 10-May-23/O | | | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |



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DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| | | | |
|-----------------------|--------------|--|--|
| Client I.D. | Dup #3 | | |
| Sample I.D. | B23-03309-33 | | |
| Date Collected | 05-May-23 | | |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | |
|--------------------------|---------|---------|------------------|--------------------|-------|--|--|
| Strontium | mg/L | 0.001 | SM 3120 | 10-May-23/O | | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 10-May-23/O | | | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 19-May-23/O | | | |
| Titanium | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 19-May-23/O | | | |
| Zinc | mg/L | 0.005 | SM 3120 | 10-May-23/O | | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 18-May-23/K | 0.79 | | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 30-May-23/K | | | |
| o-Phosphate (P) | mg/L | 0.002 | PE4500-S | 18-May-23/K | 0.060 | | |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 30-May-23/K | 1.69 | | |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | | | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | | | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 11-May-23/O | 5.7 | | |
| Anion Sum | meq/L | | Calc. | 11-May-23/O | 11.0 | | |
| Cation Sum | meq/L | | Calc. | 11-May-23/O | 11.1 | | |
| % Difference | % | | Calc. | 11-May-23/O | 0.565 | | |
| Ion Ratio | AS/CS | | Calc. | 11-May-23/O | 0.989 | | |
| Conductivity (calc.) | µmho/cm | | Calc. | 11-May-23/O | 1038 | | |



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REPORT No. B23-03309 (ii)

Report To:

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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | P6-91 | P1-91 | P5B-91 | Trip Blank |
|--|-------|------|------------------|--------------------|-------------|--------------|--------------|--------------|--------------|
| | | | | | Sample I.D. | B23-03309-30 | B23-03309-31 | B23-03309-32 | B23-03309-34 |
| Date Collected | | | | | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 |
| Acetone | µg/L | 30 | EPA 8260 | 21-May-23/R | < 30 | < 30 | < 30 | < 30 | < 30 |
| Benzene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | 0.6 | < 0.5 | < 0.5 |
| Bromodichloromethane | µg/L | 2 | EPA 8260 | 21-May-23/R | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromoform | µg/L | 5 | EPA 8260 | 21-May-23/R | < 5 | < 5 | < 5 | < 5 | < 5 |
| Bromomethane | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | µg/L | 0.2 | EPA 8260 | 21-May-23/R | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | µg/L | 1 | EPA 8260 | 21-May-23/R | < 1 | < 1 | < 1 | < 1 | < 1 |
| Dibromochloromethane | µg/L | 2 | EPA 8260 | 21-May-23/R | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichlorodifluoromethane | µg/L | 2 | EPA 8260 | 21-May-23/R | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichloroethane, 1,1- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethane, 1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloropropane, 1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Ethylbenzene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dibromoethane, 1,2- (Ethylene Dibromide) | µg/L | 0.2 | EPA 8260 | 21-May-23/R | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Steve Garrett

Director of Laboratory Services

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

C.O.C.: G096132/096133/107193

REPORT No. B23-03309 (ii)

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 12-Jun-23

P.O. NUMBER: 17-602C

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

| | | | Client I.D. | P6-91 | P1-91 | P5B-91 | Trip Blank | |
|--------------------------------------|-------|------|------------------|--------------------|--------------|--------------|--------------|-------|
| | | | Sample I.D. | B23-03309-30 | B23-03309-31 | B23-03309-32 | B23-03309-34 | |
| | | | Date Collected | 05-May-23 | 05-May-23 | 05-May-23 | 05-May-23 | |
| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
| Hexane | µg/L | 5 | EPA 8260 | 21-May-23/R | < 5 | < 5 | < 5 | < 5 |
| Methyl Ethyl Ketone | µg/L | 20 | EPA 8260 | 21-May-23/R | < 20 | < 20 | < 20 | < 20 |
| Methyl Isobutyl Ketone | µg/L | 20 | EPA 8260 | 21-May-23/R | < 20 | < 20 | < 20 | < 20 |
| Methyl-t-butyl Ether | µg/L | 2 | EPA 8260 | 21-May-23/R | < 2 | < 2 | < 2 | < 2 |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | EPA 8260 | 21-May-23/R | < 5 | < 5 | < 5 | < 5 |
| Styrene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethylene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichlorofluoromethane | µg/L | 5 | EPA 8260 | 21-May-23/R | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | µg/L | 0.2 | EPA 8260 | 21-May-23/R | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Xylene, m,p- | µg/L | 1.0 | EPA 8260 | 21-May-23/R | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Xylene, o- | µg/L | 0.5 | EPA 8260 | 21-May-23/R | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Xylene, m,p,o- | µg/L | 1.1 | EPA 8260 | 21-May-23/R | < 1.1 | < 1.1 | < 1.1 | < 1.1 |



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Steve Garrett
 Director of Laboratory Services

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from

GENERAL SAMPLE SUBMISSION FORM



| SAMPLES SUBMITTED TO: | | TESTING REQUIREMENTS | | | | REPORT NUMBER (Lab Use) |
|-----------------------|--------------------------|----------------------|-------------------------------------|----------------------|--------------------------|-------------------------|
| Kingston | <input type="checkbox"/> | O'Reg 153/04 | <input type="checkbox"/> | Table (1 - 9) | <input type="checkbox"/> | B23-03309 |
| Ottawa | <input type="checkbox"/> | O'Reg 406/19 | <input type="checkbox"/> | Table (1 - 9.1) | <input type="checkbox"/> | |
| Richmond Hill | <input type="checkbox"/> | RPI | <input type="checkbox"/> | ICC | <input type="checkbox"/> | |
| Barrie | <input type="checkbox"/> | Coarse | <input type="checkbox"/> | Medium/Fine | <input type="checkbox"/> | |
| London | <input type="checkbox"/> | MISA | <input type="checkbox"/> | PWQO | <input type="checkbox"/> | |
| Windsor | <input type="checkbox"/> | Other: ODWS | <input checked="" type="checkbox"/> | Record of Site | <input type="checkbox"/> | |
| | | | | SPLP Table (1 - 9.1) | <input type="checkbox"/> | |
| | | | | Agricultural | <input type="checkbox"/> | |
| | | | | O'Reg 558 TCLP | <input type="checkbox"/> | |
| | | | | Landfill Monitoring | <input type="checkbox"/> | |

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

| | | | | | | | |
|--|--|-----------------------------------|-------------------------------|--|--|--|--|
| Organization: JP26 | Address: 1150 Morrison Dr suite 410 Ottawa ON | Invoicing Address (if different): | ANALYSES REQUESTED | | | | TURNAROUND SERVICE REQUESTED (see back page) |
| Contact: Helena Vaughan | | | Suspected Highly Contaminated | *Must be arranged in advance <input type="checkbox"/> Platinum* 200% Surcharge <input type="checkbox"/> Gold* 100% Surcharge <input type="checkbox"/> Silver 50% Surcharge <input type="checkbox"/> Bronze 25% Surcharge <input checked="" type="checkbox"/> Standard 5-7 days <input type="checkbox"/> Specific Date: _____ | | | |
| Tel: 613-413-1276 Fax: | | | | | | | |
| Email: helena.v@jp2g.com | Quote #: L22-ClarenceRockland | Project Name#: 17-6021 | | | | | |
| Additional Info (email, cell, etc): Genevievem@jp2g.com | P.O. #: | Additional Info: | | | | | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil=Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | |
|---------|--|--------|-----------------|---------------------------|----------------|---|---|---|---|---|---|---|---|---|----|---|-------|------|-------------------|--------------------|----|
| | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 | | | pH |
| 1 | G18-92 | | GW | 23-05-03 | 11 | / | | | | | | | | | | | | 7.06 | 5.6 | 7 | Y |
| 2 | G26-94 | | | | 1130 | / | | | | | | | | | | | | 7.23 | 7.7 | 7 | |
| 3 | P4-90 | | | | 1215 | / | | | | | | | | | | | | 7.36 | 7.0 | 7 | |
| 4 | G18-92C | | | | 1230 | / | | | | | | | | | | | | 7.26 | 5.8 | 5 | |
| 5 | G8-92B | | | | 1 | / | | | | | | | | | | | | 8.13 | 6.1 | 5 | |
| 6 | G8-92A | | | | 130 | / | | | | | | | | | | | | 8.59 | 7.9 | 5 | |
| 7 | P2-90 | | | 23-05-04 | 1030 | / | | | | | | | | | | | | 6.65 | 7.0 | 5 | |
| 8 | G29-97 | | | | 1115 | / | | | | | | | | | | | | 6.77 | 8.2 | 7 | |
| 9 | G32-98B | | | | 1145 | / | | | | | | | | | | | | 7.64 | 8.5 | 7 | |
| 10 | G32-98A | | | | 1215 | / | | | | | | | | | | | | 9.4 | 8.8 | 7 | |
| 11 | G58-03 | | | | 1230 | / | | | | | | | | | | | | 7.14 | 6.9 | 5 | |
| 12 | G36-01 | | | | 1250 | / | | | | | | | | | | | | 7.16 | 6.6 | 5 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|-----------------|---|----------------------------------|--|--|--|---|--|-----------------------------|
| Sampled by: | Submitted by: | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): Jessica C | Signature: JC | Date Received (yy-mm-dd): 23/05/06 | | Time Received: 16:00 |
| Print: Helena Vaughan | | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces: 5 | Report by Email <input checked="" type="checkbox"/> | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Sample Temperature °C: 7.8 | | Labeled by: |
| Sign: Helena Vaughan | | Drop Off <input checked="" type="checkbox"/> | | Invoice by Email <input checked="" type="checkbox"/> | | | | | |
| | 23-05-05 | Caduceon (Pick-up) <input type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | |

Comments: **Please use lowest Detection**
 ① PET+R+NP+M+Hg+Pben + DOC x3
 ② R+baby+NP+M+Hg+Pben + DOC x4
 ① x3
 ② x2

GENERAL SAMPLE SUBMISSION FORM



| SAMPLES SUBMITTED TO: | | TESTING REQUIREMENTS | | | | | |
|-----------------------|--------------------------|-------------------------------------|--------------|---------------------------------------|-----------------|--------------------------|----------------------|
| Kingston | <input type="checkbox"/> | <input type="checkbox"/> | O'Reg 153/04 | <input type="checkbox"/> | Table (1 - 9) | <input type="checkbox"/> | Record of Site |
| Ottawa | <input type="checkbox"/> | <input type="checkbox"/> | O'Reg 406/19 | <input type="checkbox"/> | Table (1 - 9.1) | <input type="checkbox"/> | SPLP Table (1 - 9.1) |
| Richmond Hill | <input type="checkbox"/> | <input type="checkbox"/> | RPI | <input type="checkbox"/> | ICC | <input type="checkbox"/> | Agricultural |
| Barrie | <input type="checkbox"/> | <input type="checkbox"/> | Coarse | <input type="checkbox"/> | Medium/Fine | <input type="checkbox"/> | O'Reg 558 TCLP |
| London | <input type="checkbox"/> | <input type="checkbox"/> | MISA | <input type="checkbox"/> | PWQO | <input type="checkbox"/> | Landfill Monitoring |
| Windsor | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other: | OPWS Suspected Highly Contaminated | | | |

May 6-23
 B23-03309

REPORT NUMBER (Use)

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

| | | | | | | | | | | | | |
|--|---|-----------------------------------|--------------------|--------|--------------------------------------|--|--|--|---|--|------------------------------|--|
| Organization: JP26 | Address: 1150 Morrison Dr suite 410 Ottawa ON | Invoicing Address (if different): | ANALYSES REQUESTED | | | | | | TURNAROUND SERVICE REQUESTED (see back page) | | | |
| Contact: Helena Vaughan | | | Item#1 | Item#2 | [Empty boxes for analyses requested] | | | | | | *Must be arranged in advance | |
| Tel: 613-413-1276 | | | | | | | | | | | Platinum* 200% Surcharge | |
| Fax: | | | | | | | | | | | Gold* 100% Surcharge | |
| Email: helena.v@jp2g.com | Quote #: L22-Clarence Rockland | Project Name#: 17-6021 | | | | | | | | | Silver 50% Surcharge | |
| Additional Info (email, cell, etc): Genevieve.m@jp2g.com | P.O. #: | Additional Info: | | | | | | | | | Bronze 25% Surcharge | |
| | | | | | | | | | | | Standard 5-7 days | |
| | | | | | | | | | | | Specific Date: _____ | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil=Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N |
|---------|--|--------|-----------------|---------------------------|----------------|---|--|--|--|--|--|--|--|--|--|---|-------|-------|-------------------|--------------------|
| | | | | | | By Using A Check Mark In The Box Provided | | | | | | | | | | | pH | Temp. | | |
| 13 | G37-01 | | GW | 23-05-04 | 1130 | / | | | | | | | | | | | | | | |
| 14 | G20-92 | | | | 145 | / | | | | | | | | | | | | | | |
| 15 | G21-94 | | | | 215 | / | | | | | | | | | | | | | | |
| 16 | G12-92 | | | | 230 | / | | | | | | | | | | | | | | |
| 17 | G43-11 | | | | 330 | / | | | | | | | | | | | | | | |
| 18 | G42-10 | | | | 4 | / | | | | | | | | | | | | | | |
| 19 | Dup#2 | | | | | / | | | | | | | | | | | | | | |
| 20 | G39-07 | | | 23-05-05 | 945 | / | | | | | | | | | | | | | | |
| 21 | G40-07 | | | | 10 | / | | | | | | | | | | | | | | |
| 22 | G28-a7 | | | | 1045 | / | | | | | | | | | | | | | | |
| 23 | G31-98A | | | | 11 | / | | | | | | | | | | | | | | |
| 24 | G31-98B | | | | 1130 | / | | | | | | | | | | | | | | |

| SAMPLE SUBMISSION INFORMATION | | | SHIPPING INFORMATION | | | REPORTING / INVOICING | | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | | | | | |
|-------------------------------|---------------|--|----------------------------|-------------------------------------|-------------|-----------------------|-------------------------------------|--|--|---|--|----------------|--|--|--|--|
| Sampled by: | Submitted by: | | Courier (Client account) | <input type="checkbox"/> | Invoice | Report by Fax | <input type="checkbox"/> | | Received By (print): | Signature: | | JESSICA C JC | | | | |
| Print: Helena Vaughan | | | Courier (Caduceon account) | <input type="checkbox"/> | | Report by Email | <input checked="" type="checkbox"/> | | Date Received (yy-mm-dd): | Time Received: | | 23/05/06 16:00 | | | | |
| Sign: [Signature] | | | Drop Off | <input checked="" type="checkbox"/> | # of Pieces | Invoice by Email | <input checked="" type="checkbox"/> | | Laboratory Prepared Bottles: | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | Caduceon (Pick-up) | <input type="checkbox"/> | 5 | Invoice by Mail | <input type="checkbox"/> | | Sample Temperature °C: | 7-8 | | Labeled by: | | | | |

Comments: Please USE LOWEST Detection

①x1
 ②x2
 ①x3
 ②x6

GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04 Table (1-9) Record of Site
- O'Reg 406/19 Table (1-9.1) SPLP Table (1-9.1)
- RPI ICC Agricultural
- Coarse Medium/Fine O'Reg 558 TCLP
- MISA PWQO Landfill Monitoring
- Other: CDWS

REPORT NUMBER (Lab Use)

B23-03309

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: JP2G
 Contact: Helena Vaughan
 Tel: 613-413-1276 Fax: _____
 Email: HelenaV@jp2g.com
 Additional Info (email, cell, etc.): Genevieve.m@jp2g.com

Address: 1150 Morrison Ave suite 410, Ottawa ON
 Invoicing Address (if different): _____
 Quote #: L22-Clarence Rockland
 P.O. #: _____

Project Name or #: 17-6021
 Additional Info: _____

| ANALYSES REQUESTED | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

TURNAROUND SERVICE REQUESTED (see back page)
 *Must be arranged in advance

- Platinum* 200% Surcharge
- Gold* 100% Surcharge
- Silver 50% Surcharge
- Bronze 25% Surcharge
- Standard 5-7 days
- Specific Date: _____

| Lab No. | Sample Source and/or Sample Identification | S.P.L. (Watertrax) | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N |
|---------|--|--------------------|-----------------|---------------------------|----------------|---|---|---|---|---|---|---|---|---|----|---|-------|------|-------------------|--------------------|
| | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 | | |
| 25 | Field Blank | | GW | 23-05-05 | 12 | / | | | | | | | | | | | | | | |
| 26 | G17-92 | | | | 12:30 | / | | | | | | | | | | | 7.26 | 10.0 | 5 | Y |
| 27 | Scale House | | | | 12:45 | / | | | | | | | | | | | 9.18 | 11.4 | 7 | |
| 28 | G13-92 | | | | 1:15 | / | | | | | | | | | | | 7.0 | 9.9 | 5 | |
| 29 | G 27-97 | | | | 1:45 | / | | | | | | | | | | | 7.29 | 8.9 | 5 | |
| 30 | P6-91 | | | | 2 | / | | | | | | | | | | | 6.85 | 9.2 | 9 | |
| 31 | P1-91 | | | | 2:15 | / | | | | | | | | | | | 6.82 | 9.5 | 9 | |
| 32 | P53-91 | | | | 3 | / | | | | | | | | | | | 6.58 | 10.2 | 9 | |
| 33 | Dup#3 | | | | | / | | | | | | | | | | | | | 5 | |
| 34 | Trip Blank | | | | | / | | | | | | | | | | | | | 2 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|----------------------------------|-----------------------------|---|----------------------------------|--|---------------------------------------|--|---|-----------------------------|--|
| Sampled by: | Submitted by: | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): <u>Jessica C</u> | Signature: <u>X</u> | Date Received (yy-mm-dd): <u>23/05/06</u> | Time Received: <u>16:00</u> | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Print: <u>Helena Vaughan</u> | | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces: <u>5</u> | Report by Email <input checked="" type="checkbox"/> | | | | | |
| Sign: <u>Helena Vaughan</u> | | Drop Off <input checked="" type="checkbox"/> | | Invoice by Email <input checked="" type="checkbox"/> | | | | | |
| Date (yy-mm-dd): <u>23-05-05</u> | Date (yy-mm-dd)/Time: _____ | Caduceon (Pick-up) <input type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | Sample Temperature °C: <u>7.8</u> | Labeled by: _____ | | | |

Comments: Please us lowest Detection
② 2R + NP + M + DOC
② x1
① x1
① x2 - Hg - Phen
① x3 + 2 VOC
② x1
④ 2 VOC

C.O.C.: G096131/ 107197

REPORT No. B23-03305

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | GS8 | S3 | S2 | S1 |
|----------------------------|-------|---------|------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | Sample I.D. | B23-03305-1 | B23-03305-2 | B23-03305-3 | B23-03305-4 |
| Date Collected | | | | | 03-May-23 | 03-May-23 | 03-May-23 | 04-May-23 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 51 | 11 | 49 | 54 | |
| TDS (Calc. from Cond.) | mg/L | 1 | Calc. | 15-May-23 | 86 | 22 | 87 | 96 | |
| Chloride | mg/L | 0.5 | SM4110C | 10-May-23/O | 16.4 | 1.6 | 18.4 | 22.2 | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | | 0.07 | 1.57 | | |
| Sulphate | mg/L | 1 | SM4110C | 10-May-23/O | | 7 | 9 | | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | | < 0.05 | < 0.05 | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | | 0.04 | 0.18 | | |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 11-May-23/O | 61 | 15 | 60 | 66 | |
| Aluminum (total) | mg/L | 0.01 | SM 3120 | 11-May-23/O | | 0.08 | 1.99 | | |
| Boron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.009 | 0.006 | 0.009 | 0.008 | |
| Calcium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 16.5 | 5.10 | 15.3 | 17.6 | |
| Iron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.283 | 0.382 | 2.17 | 1.09 | |
| Magnesium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 4.74 | 0.83 | 4.93 | 5.27 | |
| Manganese | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.039 | 0.022 | 0.066 | 0.067 | |
| Potassium | mg/L | 0.1 | SM 3120 | 11-May-23/O | | 0.6 | 1.6 | | |
| Sodium | mg/L | 0.2 | SM 3120 | 11-May-23/O | 10.1 | 2.5 | 10.5 | 12.1 | |
| Barium | mg/L | 0.001 | SM 3120 | 11-May-23/O | | 0.007 | 0.028 | | |
| Silicon | mg/L | 0.01 | SM 3120 | 11-May-23/O | | 4.63 | 5.80 | | |
| Strontium | mg/L | 0.001 | SM 3120 | 11-May-23/O | | 0.027 | 0.064 | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 11-May-23/O | | 1.9 | 2.3 | | |
| Titanium | mg/L | 0.005 | SM 3120 | 11-May-23/O | | < 0.005 | 0.110 | | |
| Zinc | mg/L | 0.005 | SM 3120 | 11-May-23/O | | < 0.005 | 0.013 | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | < 0.0001 | < 0.0001 | | |
| Cadmium | mg/L | 0.00015 | EPA 200.8 | 18-May-23/O | | < 0.00015 | 0.000044 | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 18-May-23/O | | < 0.001 | 0.006 | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | 0.0003 | 0.0013 | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | 0.0006 | 0.0041 | | |



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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Steve Garrett

Director of Laboratory Services

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C.O.C.: G096131/ 107197

REPORT No. B23-03305

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | GS8 | S3 | S2 | S1 |
|--------------------------|----------|---------|----------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | Sample I.D. | B23-03305-1 | B23-03305-2 | B23-03305-3 | B23-03305-4 |
| Date Collected | | | | | 03-May-23 | 03-May-23 | 03-May-23 | 04-May-23 | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 23-May-23/O | | | 0.00008 | 0.00134 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | | < 0.0001 | 0.0002 | |
| Nickel | mg/L | 0.0002 | EPA 200.8 | 18-May-23/O | | | < 0.0002 | 0.0034 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | | < 0.0001 | < 0.0001 | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 18-May-23/O | | | < 0.00005 | < 0.00005 | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | | | 0.0003 | 0.0049 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 16-May-23/O | | | < 0.00002 | < 0.00002 | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 24-May-23/K | 0.01 | 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Ammonia (N)-unionized | mg/L | 0.01 | CALC | 24-May-23/K | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 29-May-23/K | | | 0.5 | 0.9 | |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 29-May-23/K | 0.21 | 0.08 | 0.14 | 0.06 | |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | | | < 0.001 | < 0.001 | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | | | < 3 | 3 | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | | | 8 | 49 | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 10-May-23/O | 24.4 | 4.0 | 15.6 | 30.2 | |
| pH | pH Units | | Client Supplied Data | 03-Jun-23 | 7.70 | 7.60 | 7.64 | 7.56 | |
| Temperature | °C | | Client Supplied Data | 03-Jun-23 | 7.40 | 8.50 | 7.60 | 8.60 | |

1. Filtered and acidified from GWC



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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Parameter | Units | R.L. | Client I.D. | | GS17 | GS22 | GS23 | GS6 |
|----------------------------|-------|---------|------------------|--------------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | Date Collected | B23-03305-5 | B23-03305-6 | B23-03305-7 | B23-03305-8 |
| | | | Reference Method | Date/Site Analyzed | | | | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 55 | 53 | 54 | 48 |
| TDS (Calc. from Cond.) | mg/L | 1 | Calc. | 15-May-23 | 97 | 90 | 103 | 84 |
| Chloride | mg/L | 0.5 | SM4110C | 10-May-23/O | 22.2 | 15.6 | 30.4 | 13.6 |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | 1.15 | 1.70 | 0.43 | 1.53 |
| Sulphate | mg/L | 1 | SM4110C | 10-May-23/O | 10 | 12 | 7 | 12 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.23 | 0.22 | 0.28 | 0.24 |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 11-May-23/O | 66 | 68 | 56 | 68 |
| Aluminum (total) | mg/L | 0.01 | SM 3120 | 11-May-23/O | 0.85 | 0.53 | 1.24 | 0.44 |
| Boron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.007 | 0.007 | 0.007 | 0.006 |
| Calcium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 16.6 | 17.8 | 14.5 | 16.7 |
| Iron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 1.03 | 0.848 | 1.33 | 0.732 |
| Magnesium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 5.05 | 5.20 | 4.73 | 4.78 |
| Manganese | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.063 | 0.077 | 0.051 | 0.075 |
| Potassium | mg/L | 0.1 | SM 3120 | 11-May-23/O | 1.2 | 1.1 | 1.3 | 1.0 |
| Sodium | mg/L | 0.2 | SM 3120 | 11-May-23/O | 11.6 | 7.5 | 16.8 | 6.2 |
| Barium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.020 | 0.019 | 0.019 | 0.018 |
| Silicon | mg/L | 0.01 | SM 3120 | 11-May-23/O | 4.43 | 3.97 | 4.72 | 3.59 |
| Strontium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.067 | 0.071 | 0.060 | 0.066 |
| Sulphur | mg/L | 0.1 | SM 3120 | 11-May-23/O | 2.5 | 3.1 | 1.8 | 2.8 |
| Titanium | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.039 | 0.023 | 0.060 | 0.017 |
| Zinc | mg/L | 0.005 | SM 3120 | 11-May-23/O | < 0.005 | < 0.005 | 0.009 | < 0.005 |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Cadmium | mg/L | 0.00015 | EPA 200.8 | 18-May-23/O | 0.000035 | 0.000034 | 0.000036 | 0.000036 |
| Chromium | mg/L | 0.001 | EPA 200.8 | 18-May-23/O | 0.003 | 0.002 | 0.004 | 0.002 |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0007 | 0.0006 | 0.0008 | 0.0006 |
| Copper | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0027 | 0.0036 | 0.0028 | 0.0020 |



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 Director of Laboratory Services

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REPORT No. B23-03305

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Jp2g Consultants Inc
 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | GS17 | GS22 | GS23 | GS6 |
|--------------------------|----------|---------|----------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | Sample I.D. | B23-03305-5 | B23-03305-6 | B23-03305-7 | B23-03305-8 |
| Date Collected | | | | | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 | 04-May-23 |
| Lead | mg/L | 0.00002 | EPA 200.8 | 23-May-23/O | 0.00076 | 0.00059 | 0.00092 | 0.00055 | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0002 | 0.0002 | 0.0002 | 0.0002 | |
| Nickel | mg/L | 0.0002 | EPA 200.8 | 18-May-23/O | 0.0023 | 0.0011 | 0.0020 | 0.0010 | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 18-May-23/O | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0022 | 0.0016 | 0.0029 | 0.0015 | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 16-May-23/O | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 24-May-23/K | < 0.01 | < 0.01 | < 0.01 | < 0.01 | |
| Ammonia (N)-unionized | mg/L | 0.01 | CALC | 24-May-23/K | < 0.01 | < 0.01 | < 0.01 | < 0.01 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 29-May-23/K | 0.7 | 0.4 | 0.8 | 0.5 | |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 29-May-23/K | 0.06 | 0.04 | 0.11 | 0.02 | |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | < 3 | < 3 | 6 | 5 | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 41 | 40 | 49 | 41 | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 10-May-23/O | 23.8 | 26.1 | 29.5 | 23.5 | |
| pH | pH Units | | Client Supplied Data | 03-Jun-23 | 7.33 | 7.61 | 7.50 | 7.43 | |
| Temperature | °C | | Client Supplied Data | 03-Jun-23 | 9.00 | 9.40 | 9.40 | 9.00 | |

1. Filtered and acidified from GWC



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 1150 Morrison Dr.,
 Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
 Ottawa Ontario K1V 7P1
 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Client I.D. | G520 | Dup #1 | G521 | G515 |
|----------------|-------------|--------------|--------------|--------------|
| Sample I.D. | B23-03305-9 | B23-03305-10 | B23-03305-11 | B23-03305-12 |
| Date Collected | 04-May-23 | 03-May-23 | 05-May-23 | 05-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|----------------------------|-------|---------|------------------|--------------------|----------|----------|-------|----------|
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 77 | 47 | 83 | 345 |
| TDS (Calc. from Cond.) | mg/L | 1 | Calc. | 15-May-23 | 153 | 87 | 147 | 538 |
| Chloride | mg/L | 0.5 | SM4110C | 10-May-23/O | 29.9 | 18.9 | 25.7 | 102 |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | 3.64 | 1.52 | | 0.43 |
| Sulphate | mg/L | 1 | SM4110C | 10-May-23/O | 17 | 9 | | 46 |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | < 0.05 | < 0.05 | | < 0.05 |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.08 | 0.19 | | 0.03 |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 11-May-23/O | 91 | 61 | 86 | 323 |
| Aluminum (total) | mg/L | 0.01 | SM 3120 | 11-May-23/O | 1.07 | 2.01 | | 0.06 |
| Boron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.049 | 0.008 | 0.025 | 0.689 |
| Calcium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 20.3 | 16.0 | 19.5 | 72.8 |
| Iron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 1.04 | 2.19 | 0.840 | 0.076 |
| Magnesium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 8.99 | 5.09 | 9.03 | 26.8 |
| Manganese | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.028 | 0.067 | 0.035 | 0.069 |
| Potassium | mg/L | 0.1 | SM 3120 | 11-May-23/O | 3.0 | 1.7 | | 13.4 |
| Sodium | mg/L | 0.2 | SM 3120 | 11-May-23/O | 22.2 | 10.9 | 18.6 | 74.0 |
| Barium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.030 | 0.029 | | 0.058 |
| Silicon | mg/L | 0.01 | SM 3120 | 11-May-23/O | 5.07 | 5.90 | | 2.26 |
| Strontium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.107 | 0.066 | | 0.484 |
| Sulphur | mg/L | 0.1 | SM 3120 | 11-May-23/O | 4.0 | 2.3 | | 11.3 |
| Titanium | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.051 | 0.109 | | < 0.005 |
| Zinc | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.007 | 0.012 | | < 0.005 |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0001 | < 0.0001 | | < 0.0001 |
| Cadmium | mg/L | 0.00015 | EPA 200.8 | 18-May-23/O | 0.000028 | 0.000044 | | 0.000016 |
| Chromium | mg/L | 0.001 | EPA 200.8 | 18-May-23/O | 0.004 | 0.007 | | 0.004 |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0008 | 0.0014 | | 0.0010 |
| Copper | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0044 | 0.0041 | | 0.0010 |



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Director of Laboratory Services

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 Tel: 613-526-0123
 Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| | | | | |
|-----------------------|-------------|--------------|--------------|--------------|
| Client I.D. | G520 | Dup #1 | G521 | G515 |
| Sample I.D. | B23-03305-9 | B23-03305-10 | B23-03305-11 | B23-03305-12 |
| Date Collected | 04-May-23 | 03-May-23 | 05-May-23 | 05-May-23 |

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | | |
|--------------------------|----------|---------|----------------------|--------------------|-----------|-----------|--------|-----------|
| Lead | mg/L | 0.00002 | EPA 200.8 | 23-May-23/O | 0.00052 | 0.00134 | | 0.00006 |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0003 | 0.0002 | | 0.0003 |
| Nickel | mg/L | 0.0002 | EPA 200.8 | 18-May-23/O | 0.0033 | 0.0035 | | 0.0049 |
| Silver | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0001 | < 0.0001 | | < 0.0001 |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 18-May-23/O | < 0.00005 | < 0.00005 | | < 0.00005 |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0028 | 0.0050 | | 0.0005 |
| Mercury | mg/L | 0.00002 | SM 3112 B | 16-May-23/O | < 0.00002 | < 0.00002 | | < 0.00002 |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 24-May-23/K | < 0.01 | < 0.01 | < 0.01 | 3.73 |
| Ammonia (N)-unionized | mg/L | 0.01 | CALC | 24-May-23/K | < 0.01 | < 0.01 | < 0.01 | 0.13 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 29-May-23/K | 0.8 | 1.0 | | 5.8 |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 29-May-23/K | 0.06 | 0.17 | 0.04 | 0.04 |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | < 0.001 | | < 0.001 |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | 3 | 3 | | 5 |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 22 | 41 | | 62 |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 10-May-23/O | 9.8 | 23.2 | 10.3 | 7.5 |
| pH | pH Units | | Client Supplied Data | 03-Jun-23 | 7.47 | | 8.02 | 8.06 |
| Temperature | °C | | Client Supplied Data | 03-Jun-23 | 9.30 | | 7.70 | 12.7 |

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SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | Client I.D. | | Sample I.D. | | Date Collected |
|----------------------------|-------|---------|------------------|--------------------|-------------|-------|--------------|--------------|----------------|
| | | | | | G511 | G512 | B23-03305-13 | B23-03305-14 | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | SM 2320B | 10-May-23/O | 594 | 341 | | | |
| TDS (Calc. from Cond.) | mg/L | 1 | Calc. | 15-May-23 | 823 | 532 | | | |
| Chloride | mg/L | 0.5 | SM4110C | 10-May-23/O | 135 | 102 | | | |
| Nitrate (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | 6.03 | | | | |
| Sulphate | mg/L | 1 | SM4110C | 10-May-23/O | 57 | | | | |
| Nitrite (N) | mg/L | 0.05 | SM4110C | 10-May-23/O | 0.14 | | | | |
| Aluminum | mg/L | 0.01 | SM 3120 | 10-May-23/O | 0.04 | | | | |
| Hardness (as CaCO3) | mg/L | 1 | SM 3120 | 11-May-23/O | 486 | 296 | | | |
| Aluminum (total) | mg/L | 0.01 | SM 3120 | 11-May-23/O | 0.17 | | | | |
| Boron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 1.65 | 0.710 | | | |
| Calcium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 126 | 73.8 | | | |
| Iron | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.441 | 0.106 | | | |
| Magnesium | mg/L | 0.02 | SM 3120 | 11-May-23/O | 31.1 | 27.2 | | | |
| Manganese | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.283 | 0.102 | | | |
| Potassium | mg/L | 0.1 | SM 3120 | 11-May-23/O | 31.7 | | | | |
| Sodium | mg/L | 0.2 | SM 3120 | 11-May-23/O | 113 | 75.2 | | | |
| Barium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.127 | | | | |
| Silicon | mg/L | 0.01 | SM 3120 | 11-May-23/O | 4.78 | | | | |
| Strontium | mg/L | 0.001 | SM 3120 | 11-May-23/O | 0.822 | | | | |
| Sulphur | mg/L | 0.1 | SM 3120 | 11-May-23/O | 14.7 | | | | |
| Titanium | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.010 | | | | |
| Zinc | mg/L | 0.005 | SM 3120 | 11-May-23/O | 0.009 | | | | |
| Beryllium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0002 | | | | |
| Cadmium | mg/L | 0.00015 | EPA 200.8 | 18-May-23/O | < 0.000028 | | | | |
| Chromium | mg/L | 0.001 | EPA 200.8 | 18-May-23/O | 0.003 | | | | |
| Cobalt | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0023 | | | | |
| Copper | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0034 | | | | |



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Steve Garrett

Director of Laboratory Services

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C.O.C.: G096131/ 107197

REPORT No. B23-03305

Report To:

Jp2g Consultants Inc
1150 Morrison Dr.,
Ottawa ON. K2H 8S9 Canada

Attention: Helena Vaughan

Caduceon Environmental Laboratories

2378 Holly Lane
Ottawa Ontario K1V 7P1
Tel: 613-526-0123
Fax: 613-526-1244

DATE RECEIVED: 08-May-23

JOB/PROJECT NO.: Clarence Rockland WDS

DATE REPORTED: 09-Jun-23

P.O. NUMBER:

SAMPLE MATRIX: Surface Water

WATERWORKS NO.

| | | | Client I.D. | G511 | G512 | | |
|--------------------------|----------|---------|----------------------|--------------------|--------------|------|--|
| | | | Sample I.D. | B23-03305-13 | B23-03305-14 | | |
| | | | Date Collected | 05-May-23 | 05-May-23 | | |
| Parameter | Units | R.L. | Reference Method | Date/Site Analyzed | | | |
| Lead | mg/L | 0.00002 | EPA 200.8 | 23-May-23/O | 0.00023 | | |
| Molybdenum | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0007 | | |
| Nickel | mg/L | 0.0002 | EPA 200.8 | 18-May-23/O | 0.0057 | | |
| Silver | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | < 0.0001 | | |
| Thallium | mg/L | 0.00005 | EPA 200.8 | 18-May-23/O | < 0.0001 | | |
| Vanadium | mg/L | 0.0001 | EPA 200.8 | 18-May-23/O | 0.0018 | | |
| Mercury | mg/L | 0.00002 | SM 3112 B | 16-May-23/O | < 0.00002 | | |
| Ammonia (N)-Total | mg/L | 0.01 | SM4500-NH3-H | 24-May-23/K | 20.5 | 2.93 | |
| Ammonia (N)-unionized | mg/L | 0.01 | CALC | 24-May-23/K | 0.07 | 0.14 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | E3516.2 | 29-May-23/K | 21.0 | | |
| Phosphorus-Total | mg/L | 0.01 | E3516.2 | 29-May-23/K | 0.05 | 0.07 | |
| Phenolics | mg/L | 0.001 | MOEE 3179 | 24-May-23/K | < 0.001 | | |
| BOD(5 day) | mg/L | 3 | SM 5210B | 12-May-23/K | 23 | | |
| COD | mg/L | 5 | SM5220C | 15-May-23/K | 87 | | |
| Dissolved Organic Carbon | mg/L | 0.2 | EPA 415.2 | 10-May-23/O | 7.0 | 16.0 | |
| pH | pH Units | | Client Supplied Data | 03-Jun-23 | 7.70 | 8.17 | |
| Temperature | °C | | Client Supplied Data | 03-Jun-23 | 8.10 | 15.7 | |

1 Filtered and acidified from GWC



R.L. = Reporting Limit

Test methods may be modified from specified reference method unless indicated by an *

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill, B-Barrie

Steve Garrett
Director of Laboratory Services

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GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- London
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04
- O'Reg 406/19
- RPI
- Coarse
- MISA
- Other:
- Table (1 - 9)
- Table (1 - 9.1)
- ICC
- Medium/Fine
- PWQO
- Record of Site
- SPLP Table (1 - 9.1)
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

May 6 23
B23-03305

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: JP2G
 Contact: Helena Vaughan
 Tel: 613-413-1276 Fax:
 Email: helenav@jp2g.com
 Additional Info (email, cell, etc): Genevieve.m@jp2g.com

Address: 1150 Morrison Dr suite 410 Ottawa, ON
 Invoicing Address (if different):
 Quote #: L22-ClarenceRockland
 Project Name#: 17-6021
 P.O. #: Additional Info:

| ANALYSES REQUESTED | | | | | | | | | |
|--------------------|---------|--|--|--|--|--|--|--|--|
| Item #5 | Item #6 | | | | | | | | |

| TURNAROUND SERVICE REQUESTED (see back page) | |
|--|----------------|
| *Must be arranged in advance | |
| <input type="checkbox"/> Platinum* | 200% Surcharge |
| <input type="checkbox"/> Gold* | 100% Surcharge |
| <input type="checkbox"/> Silver | 50% Surcharge |
| <input type="checkbox"/> Bronze | 25% Surcharge |
| <input checked="" type="checkbox"/> Standard | 5-7 days |
| <input type="checkbox"/> Specific Date: | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N |
|---------|--|--------|-----------------|---------------------------|--------------------|---|----|--|--|--|--|--|--|--|--|---|-------|-------|-------------------|--------------------|
| | | | | | | By Using A Check Mark In The Box Provided | | | | | | | | | | | pH | Temp. | | |
| 1 | GS8 | | SW | 23-05-03 | 10 | / | 1 | | | | | | | | | | 7.7 | 7.4 | 4 | Y |
| 2 | S3 | | | ↓ | 10 ³⁰ | / | 2 | | | | | | | | | | 7.6 | 8.5 | 8 | |
| 3 | S2 | | | ↓ | 1145 | / | 3 | | | | | | | | | | 7.64 | 7.6 | 8 | |
| 4 | S1 | | | 23-05-04 | 11 ³⁰ | / | 4 | | | | | | | | | | 7.56 | 8.6 | 4 | |
| 5 | GS17 | | | ↓ | 12 | / | 5 | | | | | | | | | | 7.33 | 9.0 | 8 | |
| 6 | GS22 | | | ↓ | 12 ³⁰ | / | 6 | | | | | | | | | | 7.61 | 9.4 | 8 | |
| 7 | GS23 | | | ↓ | 1 | / | 7 | | | | | | | | | | 7.5 | 9.4 | 8 | |
| 8 | GS6 | | | ↓ | 2 | / | 8 | | | | | | | | | | 7.43 | 9.0 | 8 | |
| 9 | GS20 | | | ↓ | 245 | / | 9 | | | | | | | | | | 7.47 | 9.3 | 8 | |
| 10 | Dup #1 | | | 23-05-03 | 12 | / | 10 | | | | | | | | | | | | 8 | |
| 11 | GS21 | | | 23-05-05 | 8 ³⁰ am | / | 11 | | | | | | | | | | 8.02 | 7.7 | 4 | |
| 12 | GS15 | | | ↓ | 945 | / | 12 | | | | | | | | | | 8.06 | 12.7 | 8 | Y |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|--------------------------------|---|----------------|---|--|--|------------------------------------|-------------------------|--|
| Print: Helena Vaughan | Submitted by: | Courier (Client account) <input type="checkbox"/> | Invoice | Report by Fax <input type="checkbox"/> | Received By (print): Bubbaska | Signature: [Signature] | Date Received (yy-mm-dd): 23/05/06 | Time Received: 16:00hrs | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Sign: [Signature] | Date (yy-mm-dd)/Time: 23-05-05 | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces: 5 | Report by Email <input checked="" type="checkbox"/> | Invoice by Email <input checked="" type="checkbox"/> | Sample Temperature °C: 7.8 | Labeled by: | | |
| | | Drop Off <input checked="" type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | |
| | | Caduceon (Pick-up) <input type="checkbox"/> | | | | | | | |

Comments: Lowest possible detection (4) bottles - R, NP, M, DOC x4 (8) bottles - pet, R, NP, 2M, phenol, DOC, Hg x 10
 Page 1 of 5
 096131
 CoC, May 2020 Revision No: 23

GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- Windsor

- O'Reg 153/04
- O'Reg 406/19
- RPI
- Coarse
- MISA
- Other:

TESTING REQUIREMENTS

- Table (1 - 9)
- Table (1 - 9.1)
- Record of Site
- SPLP Table (1-9.1)
- ICC
- Medium/Fine
- PWQO
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

B23-03305

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: **JP2G**
 Contact: **Helena Vaughan**
 Tel: **613-413-1276** Fax:
 Email: **helena.v@jp2g.com**
 Additional Info (email, cell, etc): **Genevieve.m@jp2g.com**

Address: **1150 Morrison Ave Suite 410 Ottawa ON**
 Invoicing Address (if different):
 Quote #: **L22-Clarence Rockland** Project Name or #: **17-6021**
 P.O. #: Additional Info:

| ANALYSES REQUESTED | | | | | | | | | | |
|--------------------|----------|--|--|--|--|--|--|--|--|--|
| Item # 5 | Item # 6 | | | | | | | | | |

| TURNAROUND SERVICE REQUESTED (see back page) | |
|--|----------------|
| *Must be arranged in advance | |
| <input type="checkbox"/> Platinum* | 200% Surcharge |
| <input type="checkbox"/> Gold* | 100% Surcharge |
| <input type="checkbox"/> Silver | 50% Surcharge |
| <input type="checkbox"/> Bronze | 25% Surcharge |
| <input checked="" type="checkbox"/> Standard | 5-7 days |
| <input type="checkbox"/> Specific Date: | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. (Watertrax) | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | | | |
|---------|--|--------------------|-----------------|---------------------------|----------------|---|--|--|--|--|--|--|--|--|--|---|-------|-------|-------------------|--------------------|------|---|---|
| | | | | | | By Using A Check Mark In The Box Provided | | | | | | | | | | | pH | Temp. | | | | | |
| 13 | GS11 | | SW | 23-05-05 | 030 | | | | | | | | | | | | | | | 7.7 | 8.1 | 8 | Y |
| 14 | GS12 | | ↓ | ↓ | 1045 | | | | | | | | | | | | | | | 8.19 | 15.7 | 4 | Y |

SAMPLE SUBMISSION INFORMATION

Sampled by: **Helena Vaughan**
 Submitted by: **Helena Vaughan**
 Print: **Helena Vaughan**
 Sign: **Helena Vaughan**
 Date (yy-mm-dd)/Time: **23-05-05**

SHIPPING INFORMATION

Courier (Client account) Invoice
 Courier (Caduceon account) Report by Email
 Drop Off # of Pieces **5** Invoice by Email
 Caduceon (Pick-up) Invoice by Mail

REPORTING / INVOICING

Report by Fax
 Report by Email
 Invoice by Email
 Invoice by Mail

SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)

Received By (print): **Dubhasha** Signature: **[Signature]**
 Date Received (yy-mm-dd): **23/05/06** Time Received: **16:00h**
 Laboratory Prepared Bottles: Yes No
 Sample Temperature °C: **7.8** Labeled by:

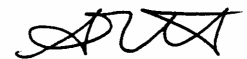
Comments: **Lowest Possible detection**

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G39-07 | G40-07 | G28-97 | G31-98A | Dup #1 |
|-----------------------------|----------|-------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021278-1 | 23-021278-2 | 23-021278-3 | 23-021278-4 | 23-021278-5 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-14 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 277 | 319 | 401 | 425 | 421 |
| TDS (Calc. from Cond.) | mg/L | 3 | | 441 | 475 | 664 | 569 | 569 |
| Chloride | mg/L | 0.5 | | 96.3 | 96.8 | 151 | 88.0 | 87.3 |
| Phosphorus (Total) | mg/L | 0.01 | | 1.14 | 0.37 | 0.06 | 2.32 | 2.47 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | 1.48 | <0.05 | <0.05 | 0.46 | 0.47 |
| o-Phosphate (P) | mg/L | 0.002 | | 0.010 | 0.012 | 0.008 | 0.745 | 0.708 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 12.7 | 16.0 | 50.8 | 5.6 | 6.0 |
| Hardness (as CaCO3) | mg/L | 0.02 | | 201 | 257 | 280 | 11.4 | 10.6 |
| Boron | mg/L | 0.005 | | 0.896 | 0.779 | 3.09 | 0.980 | 0.986 |
| Iron | mg/L | 0.005 | | 1.92 | 4.07 | 0.239 | 0.121 | 0.048 |
| Manganese | mg/L | 0.001 | | 0.218 | 0.540 | 0.056 | 0.007 | 0.004 |
| Sodium | mg/L | 0.2 | | 91.6 | 91.3 | 176 | 251 | 251 |
| pH (Client Data) | pH units | - | | 7.24 | 7.08 | 7.31 | 9.48 | |
| Temperature (Client Data) | °C | - | | 18.4 | 16.5 | 17.1 | 11.2 | |



Steve Garrett
Director of Laboratory Services

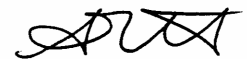
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G31-98B | G21-94 | G18-92 | P4-90 | G38-03 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021278-6 | 23-021278-7 | 23-021278-8 | 23-021278-9 | 23-021278-10 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 411 | 223 | 536 | 157 | 370 | |
| TDS (Calc. from Cond.) | mg/L | 3 | 565 | 549 | 757 | 183 | 370 | |
| Chloride | mg/L | 0.5 | 90.5 | 177 | 66.7 | 7.1 | 6.7 | |
| Nitrate (N) | mg/L | 0.05 | | | 0.10 | <0.05 | | |
| Nitrite (N) | mg/L | 0.05 | | | <0.05 | <0.05 | | |
| Sulphate | mg/L | 1 | | | 154 | 15 | | |
| BOD5 | mg/L | 3 | | | 3 | <3 | | |
| Phosphorus (Total) | mg/L | 0.01 | 0.81 | 0.54 | 0.23 | 0.29 | 0.97 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | | 2.4 | 0.6 | | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.10 | <0.05 | 0.12 | <0.05 | <0.05 | |
| o-Phosphate (P) | mg/L | 0.002 | 0.666 | 0.026 | 0.003 | 0.011 | <0.002 | |
| Dissolved Organic Carbon | mg/L | 0.2 | 5.5 | 1.7 | 14.3 | 4.8 | 9.9 | |
| Phenolics | mg/L | 0.001 | | | <0.001 | 0.002 | | |
| COD | mg/L | 5 | | | 90 | 20 | | |
| Hardness (as CaCO3) | mg/L | 0.02 | 8.81 | 78.5 | 618 | 158 | 327 | |
| Aluminum | mg/L | 0.01 | | | 0.10 | 0.03 | | |
| Barium | mg/L | 0.001 | | | 0.119 | 0.032 | | |
| Boron | mg/L | 0.005 | 0.996 | 0.011 | 0.445 | 0.042 | 0.061 | |
| Calcium | mg/L | 0.02 | | | 191 | 48.1 | | |
| Iron | mg/L | 0.005 | 0.023 | 0.045 | 1.41 | 0.019 | 20.6 | |
| Magnesium | mg/L | 0.02 | | | 34.3 | 9.20 | | |



Steve Garrett
Director of Laboratory Services

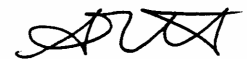
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G31-98B | G21-94 | G18-92 | P4-90 | G38-03 |
|------------|-------|--------------|----------------|-------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021278-6 | 23-021278-7 | 23-021278-8 | 23-021278-9 | 23-021278-10 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.004 | 0.078 | 4.39 | 0.022 | 1.89 | |
| Potassium | mg/L | 0.1 | | | 8.4 | 1.6 | | |
| Silicon | mg/L | 0.01 | | | 6.93 | 3.18 | | |
| Silica | mg/L | 0.02 | | | 14.8 | 6.81 | | |
| Sodium | mg/L | 0.2 | 250 | 199 | 78.6 | 4.8 | 13.4 | |
| Strontium | mg/L | 0.001 | | | 0.795 | 0.250 | | |
| Sulphur | mg/L | - | | | 48.8 | 5.27 | | |
| Titanium | mg/L | 0.005 | | | <0.005 | <0.005 | | |
| Zinc | mg/L | 0.005 | | | <0.005 | <0.005 | | |
| Beryllium | mg/L | 0.0001 | | | <0.0001 | <0.0001 | | |
| Cadmium | mg/L | 0.00001 5 | | | 0.000130 | <0.000015 | | |
| Chromium | mg/L | 0.001 | | | <0.001 | <0.001 | | |
| Cobalt | mg/L | 0.0001 | | | 0.0020 | 0.0005 | | |
| Copper | mg/L | 0.0001 | | | 0.0053 | 0.0025 | | |
| Lead | mg/L | 0.00002 | | | 0.00006 | 0.00002 | | |
| Molybdenum | mg/L | 0.0001 | | | 0.0003 | 0.0002 | | |
| Nickel | mg/L | 0.0002 | | | 0.0115 | 0.0011 | | |
| Silver | mg/L | 0.0001 | | | <0.0001 | <0.0001 | | |
| Thallium | mg/L | 0.00005 | | | <0.00005 | <0.00005 | | |
| Vanadium | mg/L | 0.0001 | | | 0.0007 | 0.0008 | | |
| Mercury | mg/L | 0.00002 | | | 0.00003 | <0.00002 | | |



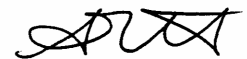
Steve Garrett
Director of Laboratory Services

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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G31-98B | G21-94 | G18-92 | P4-90 | G38-03 |
|----------------------------------|----------|------|----------------|-------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021278-6 | 23-021278-7 | 23-021278-8 | 23-021278-9 | 23-021278-10 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| | | | - | - | - | - | - | - |
| Anion Sum | meq/L | - | | | | 15.8 | 3.65 | |
| Cation Sum | meq/L | - | | | | 16.2 | 3.41 | |
| % Difference | % | - | | | | 1.33 | 3.33 | |
| Ion Ratio | - | - | | | | 0.974 | 1.07 | |
| Sodium Adsorption Ratio | - | - | | | | 1.38 | 0.166 | |
| TDS (Ion Sum Calc) | mg/L | 1 | | | | 861 | 180 | |
| TDS(calc.)/EC(actual) | - | - | | | | 0.618 | 0.507 | |
| Conductivity Calc | µmho/cm | - | | | | 1380 | 338 | |
| Conductivity Calc / Conductivity | - | - | | | | 0.987 | 0.952 | |
| Langelier Index(25°C) | - | - | | | | 0.848 | -0.605 | |
| Saturation pH (25°C) | - | - | | | | 6.48 | 7.53 | |
| pH (Client Data) | pH units | - | 9.48 | 7.50 | 6.81 | 7.32 | 7.32 | 6.61 |
| Temperature (Client Data) | °C | - | 9.8 | 16.5 | 16.4 | 13.3 | 13.3 | 15.1 |



Steve Garrett
Director of Laboratory Services

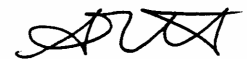
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Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G32-98A | G32-98B | Dup #2 | G12-92 | G26-94 |
|-----------------------------|-------|-------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-11 | 23-021278-12 | 23-021278-13 | 23-021278-14 | 23-021278-15 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-14 | 2023-08-15 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 358 | 347 | 223 | 219 | 47 |
| TDS (Calc. from Cond.) | mg/L | 3 | | 452 | 423 | 551 | 311 | 46 |
| Chloride | mg/L | 0.5 | | 55.2 | 49.3 | 181 | 55.4 | 2.2 |
| Nitrate (N) | mg/L | 0.05 | | 0.08 | 0.06 | | <0.05 | 0.10 |
| Nitrite (N) | mg/L | 0.05 | | <0.05 | <0.05 | | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | | <1 | <1 | | 15 | 5 |
| BOD5 | mg/L | 3 | | 7 | 12 | | <3 | <3 |
| Phosphorus (Total) | mg/L | 0.01 | | 1.67 | 4.82 | 0.77 | 0.27 | 1.36 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | 0.9 | 2.3 | | 0.6 | 0.3 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | 0.49 | 0.50 | <0.05 | <0.05 | <0.05 |
| o-Phosphate (P) | mg/L | 0.002 | | 0.455 | 0.587 | 0.025 | 0.011 | 0.030 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 4.4 | 6.1 | 1.5 | 2.9 | 2.7 |
| Phenolics | mg/L | 0.001 | | <0.001 | <0.001 | | <0.001 | <0.001 |
| COD | mg/L | 5 | | 51 | 110 | | <5 | 7 |
| Hardness (as CaCO3) | mg/L | 0.02 | | 4.17 | 4.97 | 79.5 | 199 | 33.7 |
| Aluminum | mg/L | 0.01 | | <0.01 | <0.01 | | 0.04 | 0.01 |
| Barium | mg/L | 0.001 | | 0.031 | 0.044 | | 0.020 | 0.009 |
| Boron | mg/L | 0.005 | | 0.793 | 0.736 | 0.011 | 0.036 | 0.008 |
| Calcium | mg/L | 0.02 | | 0.78 | 0.92 | | 45.1 | 9.04 |
| Iron | mg/L | 0.005 | | 0.005 | 0.011 | 0.039 | 0.005 | 0.033 |
| Magnesium | mg/L | 0.02 | | 0.54 | 0.65 | | 20.9 | 2.71 |



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Director of Laboratory Services

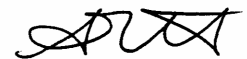
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Final Report

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| Parameter | Units | R.L. | Client I.D. | G32-98A | G32-98B | Dup #2 | G12-92 | G26-94 |
|------------|-------|----------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-11 | 23-021278-12 | 23-021278-13 | 23-021278-14 | 23-021278-15 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-14 | 2023-08-15 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 0.002 | 0.001 | 0.079 | 0.011 | 0.188 | |
| Potassium | mg/L | 0.1 | 2.9 | 3.0 | | 2.9 | 0.9 | |
| Silicon | mg/L | 0.01 | 2.89 | 2.89 | | 5.24 | 3.52 | |
| Silica | mg/L | 0.02 | 6.18 | 6.18 | | 11.2 | 7.53 | |
| Sodium | mg/L | 0.2 | 204 | 191 | 199 | 46.2 | 3.3 | |
| Strontium | mg/L | 0.001 | 0.049 | 0.054 | | 0.144 | 0.101 | |
| Sulphur | mg/L | - | 1.00 | 2.75 | | 4.84 | 1.85 | |
| Titanium | mg/L | 0.005 | <0.005 | <0.005 | | <0.005 | <0.005 | |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | | 0.006 | <0.005 | |
| Beryllium | mg/L | 0.0001 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | | <0.000015 | 0.000021 | |
| Chromium | mg/L | 0.001 | <0.001 | <0.001 | | <0.001 | <0.001 | |
| Cobalt | mg/L | 0.0001 | <0.0001 | <0.0001 | | 0.0001 | 0.0007 | |
| Copper | mg/L | 0.0001 | 0.0002 | 0.0002 | | 0.0025 | 0.0027 | |
| Lead | mg/L | 0.00002 | 0.00028 | 0.00027 | | 0.00004 | 0.00004 | |
| Molybdenum | mg/L | 0.0001 | 0.0004 | 0.0004 | | 0.0004 | <0.0001 | |
| Nickel | mg/L | 0.0002 | <0.0002 | <0.0002 | | 0.0012 | 0.0031 | |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | | <0.0001 | <0.0001 | |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | | <0.00005 | <0.00005 | |
| Vanadium | mg/L | 0.0001 | 0.0002 | 0.0002 | | 0.0003 | 0.0002 | |
| Mercury | mg/L | 0.00002 | 0.00003 | <0.00002 | | <0.00002 | <0.00002 | |



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Director of Laboratory Services

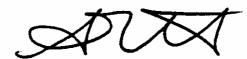
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Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G32-98A | G32-98B | Dup #2 | G12-92 | G26-94 |
|----------------------------------|----------|------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-11 | 23-021278-12 | 23-021278-13 | 23-021278-14 | 23-021278-15 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-14 | 2023-08-15 | 2023-08-15 |
| Anion Sum | meq/L | - | - | 8.74 | 8.33 | - | 6.24 | 1.11 |
| Cation Sum | meq/L | - | - | 9.03 | 8.48 | - | 6.06 | 0.851 |
| % Difference | % | - | - | 1.66 | 0.896 | - | 1.48 | 13.3 |
| Ion Ratio | - | - | - | 0.967 | 0.982 | - | 1.03 | 1.31 |
| Sodium Adsorption Ratio | - | - | - | 43.4 | 37.3 | - | 1.43 | 0.246 |
| TDS (Ion Sum Calc) | mg/L | 1 | - | 479 | 454 | - | 316 | 52 |
| TDS(calc.)/EC(actual) | - | - | - | 0.560 | 0.564 | - | 0.528 | 0.578 |
| Conductivity Calc | µmho/cm | - | - | 823 | 778 | - | 593 | 97.4 |
| Conductivity Calc / Conductivity | - | - | - | 0.961 | 0.966 | - | 0.989 | 1.08 |
| Langelier Index(25°C) | - | - | - | 0.145 | 0.189 | - | -0.448 | -2.40 |
| Saturation pH (25°C) | - | - | - | 9.02 | 8.96 | - | 7.45 | 8.71 |
| pH (Client Data) | pH units | - | - | 9.66 | 9.53 | - | 7.05 | 6.60 |
| Temperature (Client Data) | °C | - | - | 12.9 | 11.3 | - | 14.8 | 13.7 |



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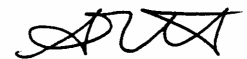
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Final Report

REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G29-97 | G36-01 | P2-90 | G37-01 | G20-92 |
|-----------------------------|-------|-------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-16 | 23-021278-17 | 23-021278-18 | 23-021278-19 | 23-021278-20 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | - | 417 | 193 | 98 | 102 | 453 |
| TDS (Calc. from Cond.) | mg/L | 3 | - | 446 | 343 | 216 | 722 | 546 |
| Chloride | mg/L | 0.5 | - | 5.2 | 7.7 | 12.1 | 268 | 12.6 |
| Nitrate (N) | mg/L | 0.05 | - | 4.64 | | | 4.41 | |
| Nitrite (N) | mg/L | 0.05 | - | <0.05 | | | <0.05 | |
| Sulphate | mg/L | 1 | - | 26 | | | 106 | |
| BOD5 | mg/L | 3 | - | <3 | | | <3 | |
| Phosphorus (Total) | mg/L | 0.01 | - | 0.72 | 0.04 | 3.75 | 0.10 | 16.2 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | - | 0.7 | | | 0.3 | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | - | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| o-Phosphate (P) | mg/L | 0.002 | - | 0.010 | 0.005 | 0.018 | 0.006 | 0.040 |
| Dissolved Organic Carbon | mg/L | 0.2 | - | 12.5 | 16.5 | 4.1 | 1.1 | 19.5 |
| Phenolics | mg/L | 0.001 | - | <0.001 | | | <0.001 | |
| COD | mg/L | 5 | - | 96 | | | 8 | |
| Hardness (as CaCO3) | mg/L | 0.02 | - | 399 | 309 | 40.0 | 196 | 544 |
| Aluminum | mg/L | 0.01 | - | 0.06 | | | 0.03 | |
| Barium | mg/L | 0.001 | - | 0.061 | | | 0.101 | |
| Boron | mg/L | 0.005 | - | 0.081 | 0.079 | <0.005 | 0.008 | 0.703 |
| Calcium | mg/L | 0.02 | - | 116 | | | 48.1 | |
| Iron | mg/L | 0.005 | - | <0.005 | <0.005 | 0.035 | 0.006 | 0.040 |
| Magnesium | mg/L | 0.02 | - | 26.6 | | | 18.5 | |



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Director of Laboratory Services

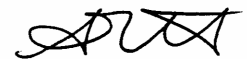
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Final Report

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| Parameter | Units | R.L. | Client I.D. | G29-97 | G36-01 | P2-90 | G37-01 | G20-92 |
|------------|-------|----------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-16 | 23-021278-17 | 23-021278-18 | 23-021278-19 | 23-021278-20 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Manganese | mg/L | 0.001 | 3.71 | 0.046 | 0.002 | 0.039 | 0.194 | |
| Potassium | mg/L | 0.1 | 1.9 | | | 1.0 | | |
| Silicon | mg/L | 0.01 | 4.84 | | | 3.09 | | |
| Silica | mg/L | 0.02 | 10.4 | | | 6.61 | | |
| Sodium | mg/L | 0.2 | 25.9 | 14.4 | 77.4 | 190 | 32.4 | |
| Strontium | mg/L | 0.001 | 0.684 | | | 0.615 | | |
| Sulphur | mg/L | - | 11.9 | | | 31.5 | | |
| Titanium | mg/L | 0.005 | <0.005 | | | <0.005 | | |
| Zinc | mg/L | 0.005 | <0.005 | | | 0.006 | | |
| Beryllium | mg/L | 0.0001 | <0.0001 | | | <0.0001 | | |
| Cadmium | mg/L | 0.000015 | 0.000120 | | | 0.000110 | | |
| Chromium | mg/L | 0.001 | <0.001 | | | 0.002 | | |
| Cobalt | mg/L | 0.0001 | 0.0058 | | | 0.0004 | | |
| Copper | mg/L | 0.0001 | 0.0059 | | | 0.0041 | | |
| Lead | mg/L | 0.00002 | <0.00002 | | | 0.00003 | | |
| Molybdenum | mg/L | 0.0001 | 0.0004 | | | 0.0001 | | |
| Nickel | mg/L | 0.0002 | 0.0066 | | | 0.0053 | | |
| Silver | mg/L | 0.0001 | <0.0001 | | | <0.0001 | | |
| Thallium | mg/L | 0.00005 | <0.00005 | | | <0.00005 | | |
| Vanadium | mg/L | 0.0001 | 0.0011 | | | 0.0003 | | |
| Mercury | mg/L | 0.00002 | 0.00004 | | | <0.00002 | | |



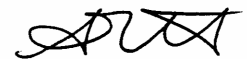
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Director of Laboratory Services

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Final Report
REPORT No: 23-021278 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G29-97 | G36-01 | P2-90 | G37-01 | G20-92 |
|----------------------------------|----------|------|----------------|--------------|--------------|--------------|--------------|--------------|
| | | | Sample I.D. | 23-021278-16 | 23-021278-17 | 23-021278-18 | 23-021278-19 | 23-021278-20 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 | 2023-08-15 |
| | | | - | - | - | - | - | - |
| Anion Sum | meq/L | - | 9.37 | | | | 13.1 | |
| Cation Sum | meq/L | - | 9.30 | | | | 12.2 | |
| % Difference | % | - | 0.362 | | | | 3.37 | |
| Ion Ratio | - | - | 1.01 | | | | 1.07 | |
| Sodium Adsorption Ratio | - | - | 0.564 | | | | 5.90 | |
| TDS (Ion Sum Calc) | mg/L | 1 | 477 | | | | 747 | |
| TDS(calc.)/EC(actual) | - | - | 0.564 | | | | 0.561 | |
| Conductivity Calc | µmho/cm | - | 815 | | | | 1350 | |
| Conductivity Calc / Conductivity | - | - | 0.964 | | | | 1.01 | |
| Langelier Index(25°C) | - | - | 0.462 | | | | -1.29 | |
| Saturation pH (25°C) | - | - | 6.78 | | | | 7.79 | |
| pH (Client Data) | pH units | - | 6.99 | 7.03 | 7.25 | 6.60 | 6.95 | |
| Temperature (Client Data) | °C | - | 10.9 | 14.6 | 11.9 | 12.2 | 15.3 | |



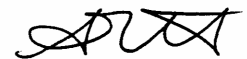
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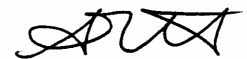
| Parameter | Units | R.L. | Client I.D. |
|-----------------------------|-------|-------|----------------|
| | | | G42-10 |
| | | | Sample I.D. |
| | | | 23-021278-21 |
| | | | Date Collected |
| | | | 2023-08-15 |
| | | | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 210 |
| TDS (Calc. from Cond.) | mg/L | 3 | 630 |
| Chloride | mg/L | 0.5 | 230 |
| Nitrate (N) | mg/L | 0.05 | 0.09 |
| Nitrite (N) | mg/L | 0.05 | <0.05 |
| Sulphate | mg/L | 1 | 23 |
| BOD5 | mg/L | 3 | <3 |
| Phosphorus (Total) | mg/L | 0.01 | 0.37 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 4.6 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.68 |
| o-Phosphate (P) | mg/L | 0.002 | 0.067 |
| Dissolved Organic Carbon | mg/L | 0.2 | 40.4 |
| Phenolics | mg/L | 0.001 | <0.001 |
| COD | mg/L | 5 | 198 |
| Hardness (as CaCO3) | mg/L | 0.02 | 224 |
| Aluminum | mg/L | 0.01 | 0.42 |
| Barium | mg/L | 0.001 | 0.050 |
| Boron | mg/L | 0.005 | 0.210 |
| Calcium | mg/L | 0.02 | 47.1 |
| Iron | mg/L | 0.005 | 3.66 |
| Magnesium | mg/L | 0.02 | 25.8 |



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Director of Laboratory Services

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| Parameter | Units | R.L. | Client I.D. |
|------------|-------|--------------|----------------|
| | | | G42-10 |
| | | | Sample I.D. |
| | | | 23-021278-21 |
| | | | Date Collected |
| | | | 2023-08-15 |
| Parameter | Units | R.L. | |
| Manganese | mg/L | 0.001 | 0.645 |
| Potassium | mg/L | 0.1 | 4.3 |
| Silicon | mg/L | 0.01 | 4.45 |
| Silica | mg/L | 0.02 | 9.52 |
| Sodium | mg/L | 0.2 | 159 |
| Strontium | mg/L | 0.001 | 0.246 |
| Sulphur | mg/L | - | 8.98 |
| Titanium | mg/L | 0.005 | 0.028 |
| Zinc | mg/L | 0.005 | 0.007 |
| Beryllium | mg/L | 0.0001 | <0.0001 (11) |
| Cadmium | mg/L | 0.00001 5 | 0.000049 (11) |
| Chromium | mg/L | 0.001 | 0.004 (11) |
| Cobalt | mg/L | 0.0001 | 0.0024 (11) |
| Copper | mg/L | 0.0001 | 0.0064 (11) |
| Lead | mg/L | 0.00002 | 0.00098 (11) |
| Molybdenum | mg/L | 0.0001 | 0.0010 (11) |
| Nickel | mg/L | 0.0002 | 0.0097 (11) |
| Silver | mg/L | 0.0001 | <0.0001 (11) |
| Thallium | mg/L | 0.00005 | <0.00005 (11) |
| Vanadium | mg/L | 0.0001 | 0.0089 (11) |
| Mercury | mg/L | 0.00002 | 0.00003 |

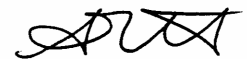


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| Parameter | Units | R.L. | Client I.D. |
|----------------------------------|----------|------|----------------|
| | | | G42-10 |
| | | | Sample I.D. |
| | | | 23-021278-21 |
| | | | Date Collected |
| | | | 2023-08-15 |
| | | | - |
| Anion Sum | meq/L | - | 11.2 |
| Cation Sum | meq/L | - | 11.7 |
| % Difference | % | - | 2.46 |
| Ion Ratio | - | - | 0.952 |
| Sodium Adsorption Ratio | - | - | 4.62 |
| TDS (Ion Sum Calc) | mg/L | 1 | 620 |
| TDS(calc.)/EC(actual) | - | - | 0.530 |
| Conductivity Calc | µmho/cm | - | 1160 |
| Conductivity Calc / Conductivity | - | - | 0.988 |
| Langelier Index(25°C) | - | - | -0.538 |
| Saturation pH (25°C) | - | - | 7.48 |
| pH (Client Data) | pH units | - | 6.95 |
| Temperature (Client Data) | °C | - | 14.6 |

Comments:

11. Digested



Steve Garrett
 Director of Laboratory Services

GENERAL SAMPLE SUBMISSION FORM



| SAMPLES SUBMITTED TO: | | TESTING REQUIREMENTS | | | | REPORT NUMBER (Lab Use) |
|-----------------------|-------------------------------------|----------------------|--------------------------|-----------------|-------------------------------------|-------------------------|
| Kingston | <input type="checkbox"/> | O'Reg 153/04 | <input type="checkbox"/> | Table (1 - 9) | <input type="checkbox"/> | 23/08/15 23-021278 |
| Ottawa | <input checked="" type="checkbox"/> | O'Reg 406/19 | <input type="checkbox"/> | Table (1 - 9.1) | <input type="checkbox"/> | |
| Richmond Hill | <input type="checkbox"/> | RPI | <input type="checkbox"/> | ICC | <input type="checkbox"/> | |
| Barrie | <input type="checkbox"/> | Coarse | <input type="checkbox"/> | Medium/Fine | <input type="checkbox"/> | |
| London | <input type="checkbox"/> | MISA | <input type="checkbox"/> | PWQO | <input checked="" type="checkbox"/> | |
| Windsor | <input type="checkbox"/> | Other: | | | | |

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

| | | | | | | | | |
|-------------------------------------|--|--|--|---------------|--|--|--|----------------|
| Organization: JP2G consultants Inc | Address: 1150 Morrison drive suite 410 | Invoicing Address (if different): | ANALYSES REQUESTED | | | | TURNAROUND SERVICE REQUESTED (see back page) | |
| Contact: Geneviève Marcoux | | | Suspected Highly Contaminated | | | | *Must be arranged in advance | |
| Tel: 647-884-7274 Fax: | | | | | | | Platinum* | 200% Surcharge |
| Email: genevievem@jp2g.com | Quote #: 92988 | Project Name#: 17-6021G | | | | | Gold* | 100% Surcharge |
| Additional Info (email, cell, etc): | P.O. #: | Additional Info: Clarence Rockland WDS | Silver | 50% Surcharge | | | | |
| | | | Bronze | 25% Surcharge | | | | |
| | | | <input checked="" type="checkbox"/> Standard | 5-7 days | | | | |
| | | | <input type="checkbox"/> Specific Date: | | | | | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil=Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | |
|---------|--|--------|-----------------|---------------------------|----------------|---|-------|--|--|--|--|--|--|--|--|---|-------|------|-------------------|--------------------|---|
| | | | | | | pH | Temp. | | | | | | | | | | | | | | |
| 1 | G39-07 | | GW | 23-08-14 | 11:15am | X | | | | | | | | | | | | 7.24 | 18.4 | 5 | Y |
| 2 | G40-07 | | | | 12:00pm | X | | | | | | | | | | | | 7.08 | 16.5 | 5 | |
| 3 | G28-97 | | | | 1:45pm | X | | | | | | | | | | | | 7.31 | 17.1 | 5 | |
| 4 | G31-98A | | | | 2:10pm | X | | | | | | | | | | | | 9.48 | 11.2 | 5 | |
| 5 | Dup #1 | | | | | X | | | | | | | | | | | | | | 5 | |
| 6 | G31-98B | | | | 2:30pm | X | | | | | | | | | | | | 9.48 | 9.8 | 5 | |
| 7 | G21-94 | | | | 3:50pm | X | | | | | | | | | | | | 7.50 | 16.5 | 5 | |
| 8 | G18-92 | | | 23-08-15 | 10:15am | X | | | | | | | | | | | | 6.81 | 16.4 | 8 | |
| 9 | P4-90 | | | | 11:15am | X | | | | | | | | | | | | 7.32 | 13.3 | 8 | |
| 10 | G38-03 | | | | 12:00pm | X | | | | | | | | | | | | 6.61 | 15.1 | 5 | |
| 11 | G32-98A | | | | 12:45pm | X | | | | | | | | | | | | 9.66 | 12.9 | 8 | |
| 12 | G32-98B | | | | 12:30pm | X | | | | | | | | | | | | 9.53 | 11.3 | 8 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|--------------------------------|----------------------------|-------------------------------------|-----------------------|------------------|--|---|------------------------------------|---------------------|
| Print: Brittany Holland | Submitted by: " | Courier (Client account) | <input type="checkbox"/> | Invoice | Report by Fax | Received By (print): | Signature: | Date Received (yy-mm-dd): 23/08/15 | Time Received: 1030 |
| Sign: Brittany Holland | Date (yy-mm-dd)/Time: 23-08-15 | Courier (Caduceon account) | <input type="checkbox"/> | # of Pieces | Report by Email | Laboratory Prepared Bottles: | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | Sample Temperature °C: 17.1 | Labeled by: |
| | | Drop Off | <input checked="" type="checkbox"/> | | Invoice by Email | | | | |
| | | Caduceon (Pick-up) | <input type="checkbox"/> | | Invoice by Mail | | | | |

Comments: lowest detection limit
 ①-②, ⑩, ⑬, ⑭, ⑯, ⑳
 R, NP, M, DOC, Baby
 ②, ④, ①, ②, ④-⑩, ⑫, ⑬
 Pts R, NP, M, Hy, DOC
 photo

Page 1 of 2
G 096278

GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- London
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04
- O'Reg 406/19
- RPI
- Coarse
- MISA
- Other:
- Table (1 - 9)
- Table (1 - 9.1)
- ICC
- Medium/Fine
- PWQO
- Record of Site
- SPL Table (1 - 9.1)
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

23108/15
23-021278

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

| | | | | | |
|---|---|--|--|-------------------------------|---|
| Organization: JP2G consultants Inc Contact: Geneviève Marcoux Tel: 647-884-7274 Email: genevievem@jp2g.com | Address: 1150 Morrison drive suite 410 Quote #: Q2988 P.O. #: | Invoicing Address (if different): Project Name#: 17-6021G Additional Info: | ANALYSES REQUESTED Item #1 Item #2 | Suspected Highly Contaminated | TURNAROUND SERVICE REQUESTED (see back page) *Must be arranged in advance <input type="checkbox"/> Platinum* 200% Surcharge <input type="checkbox"/> Gold* 100% Surcharge <input type="checkbox"/> Silver 50% Surcharge <input type="checkbox"/> Bronze 25% Surcharge <input checked="" type="checkbox"/> Standard 5-7 days <input type="checkbox"/> Specific Date: |
|---|---|--|--|-------------------------------|---|

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/Sample | Field Filtered Y/N | |
|---------|--|--------|-----------------|---------------------------|----------------|---|-------|--|--|--|--|--|--|--|--|---|-------|------|------------------|--------------------|---|
| | | | | | | pH | Temp. | | | | | | | | | | | | | | |
| 13 | Dup #2 | | GW | 23-08-14 | | X | | | | | | | | | | | | 7.05 | 14.8 | 5 | Y |
| 14 | G12-92 | | GW | 23-08-15 | 7:30am | X | | | | | | | | | | | | 6.60 | 13.7 | 8 | |
| 15 | G26-94 | | GW | | 7:30am | X | | | | | | | | | | | | 6.99 | 10.9 | 8 | |
| 16 | G29-97 | | | | 8:30am | X | | | | | | | | | | | | 7.03 | 14.6 | 5 | |
| 17 | G36-01 | | | | 1:15pm | X | | | | | | | | | | | | 7.25 | 11.9 | 5 | |
| 18 | P2-90 | | | | 1:45pm | X | | | | | | | | | | | | 6.60 | 12.2 | 8 | |
| 19 | G37-01 | | | | 2:15pm | X | | | | | | | | | | | | 6.95 | 15.3 | 5 | |
| 20 | G20-92 | | | | 2:30pm | X | | | | | | | | | | | | 6.95 | 14.6 | 8 | |
| 21 | G42-10 | | | | 2:45pm | X | | | | | | | | | | | | | | | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | | |
|-------------------------------|-----------------|---|-------------|--|---|--|------------------------------------|---------------------|--|--|
| Print: Brittany Holland | Submitted by: " | Courier (Client account) <input type="checkbox"/> | Invoice | Report by Fax <input type="checkbox"/> | Received By (print): Derek F | Signature: [Signature] | Date Received (yy-mm-dd): 23108/15 | Time Received: 1630 | | |
| Sign: Brittany Holland | " | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces | Report by Email <input type="checkbox"/> | Laboratory Prepared Bottles: <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| Date: 23-08-15 | " | Drop Off <input checked="" type="checkbox"/> | | Invoice by Email <input checked="" type="checkbox"/> | Sample Temperature °C: 17.1 | Labeled by: | | | | |
| | | Caduceon (Pick-up) <input type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | | |

Comments: lowest detection limit
 1-7, 10, 13, 17, 18, 20
 R, NP, M, DOC, B, uky
 8, 9, 11, 12, 21-16, 19, 21
 Ret, R, NP, M, Hg, DOC
 plend

C.O.C.: G 107240

REPORT No: 23-021433 - Rev. 0

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.
 Ottawa, ON K2H 8S9

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Genevieve Marcoux

DATE RECEIVED: 2023-Aug-16
 DATE REPORTED: 2023-Aug-31
 SAMPLE MATRIX: Ground Water


CUSTOMER PROJECT: 17-6021G - Clarence Rockland W
 P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|--------------------------------|-----|---------------|------------|---------------|--------------------------|--------------------------|
| Anions (Liquid) | 9 | OTTAWA | VKASYAN | 2023-Aug-18 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 5 | KINGSTON | MDUBIEN | 2023-Aug-18 | BOD-001 | SM 5210B |
| COD (Liquid) | 5 | KINGSTON | EHINCH | 2023-Aug-18 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 9 | OTTAWA | SBOUDREAU | 2023-Aug-18 | COND-02/PH-02/A LK-02 | SM 2510B/4500H/ 2320B |
| DOC/DIC (Liquid) | 9 | OTTAWA | VKASYAN | 2023-Aug-17 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 5 | OTTAWA | STAILLON | | CP-028 | MECP E3196 |
| ICP/MS (Liquid) | 5 | OTTAWA | TPRICE | 2023-Aug-21 | D-ICPMS-01 | EPA 200.8 |
| ICP/OES (Liquid) | 9 | OTTAWA | NHOGAN | 2023-Aug-18 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 5 | OTTAWA | TBENNETT | 2023-Aug-21 | D-HG-02 | SM 3112B |
| Ammonia & o-Phosphate (Liquid) | 9 | KINGSTON | KDIBBITS | 2023-Aug-21 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 5 | KINGSTON | JMACINNES | 2023-Aug-30 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 9 | KINGSTON | KDIBBITS | 2023-Aug-25 | TPTKN-001 | MECP E3516.2 |
| VOC-Volatiles Full (Water) | 4 | RICHMOND_HILL | FLENA | 2023-Aug-18 | C-VOC-02 | EPA 8260 |

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



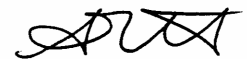
Steve Garrett
Director of Laboratory Services

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G43-11 | G17-92 | Scale House | G13-92 | G27-97 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021433-1 | 23-021433-2 | 23-021433-3 | 23-021433-4 | 23-021433-5 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 667 | 267 | 399 | 391 | 757 | |
| TDS (Calc. from Cond.) | mg/L | 3 | 8 | 8 | 9 | 8 | 1190 | |
| Chloride | mg/L | 0.5 | 43.5 | 296 | 95.1 | 112 | 20.9 | |
| Nitrate (N) | mg/L | 0.05 | 0.07 | | <0.05 | | | |
| Nitrite (N) | mg/L | 0.05 | <0.05 | | <0.05 | | | |
| Sulphate | mg/L | 1 | 6 | | <1 | | | |
| BOD5 | mg/L | 3 | 4 | | 12 | | | |
| Phosphorus (Total) | mg/L | 0.01 | 5.13 | 8.98 | 0.52 | 0.11 | 0.07 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 11.1 | | 0.7 | | | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 1.28 | 0.09 | 0.19 | <0.05 | 0.14 | |
| o-Phosphate (P) | mg/L | 0.002 | 1.37 | 0.010 | 0.425 | 0.007 | 0.006 | |
| Dissolved Organic Carbon | mg/L | 0.2 | 35.8 | 2.1 | 4.4 | 7.9 | 11.1 | |
| Phenolics | mg/L | 0.001 | <0.001 | | <0.001 | | | |
| COD | mg/L | 5 | 349 | | 16 | | | |
| Hardness (as CaCO3) | mg/L | 0.02 | 109 | 574 | 7.95 | 473 | 784 | |
| Aluminum | mg/L | 0.01 | 0.02 | | <0.01 | | | |
| Barium | mg/L | 0.001 | 0.059 | | 0.076 | | | |
| Boron | mg/L | 0.005 | 1.04 | 0.253 | 0.954 | 0.224 | 0.898 | |
| Calcium | mg/L | 0.02 | 20.3 | | 1.11 | | | |
| Iron | mg/L | 0.005 | 1.20 | 1.67 | 0.199 | 0.035 | 2.52 | |
| Magnesium | mg/L | 0.02 | 14.2 | | 1.26 | | | |



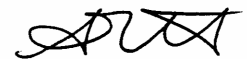
Steve Garrett
Director of Laboratory Services

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | G43-11 | G17-92 | Scale House | G13-92 | G27-97 |
|------------|-------|----------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021433-1 | 23-021433-2 | 23-021433-3 | 23-021433-4 | 23-021433-5 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - | - |
| Manganese | mg/L | 0.001 | | 0.287 | 0.161 | 0.006 | 0.091 | 1.01 |
| Potassium | mg/L | 0.1 | | 10.3 | | 4.4 | | |
| Silicon | mg/L | 0.01 | | 9.53 | | 2.79 | | |
| Sodium | mg/L | 0.2 | | 278 | 50.1 | 226 | 41.6 | 173 |
| Strontium | mg/L | 0.001 | | 0.170 | | 0.081 | | |
| Sulphur | mg/L | - | | 12.5 | | 0.20 | | |
| Titanium | mg/L | 0.005 | | <0.005 | | <0.005 | | |
| Zinc | mg/L | 0.005 | | <0.005 | | <0.005 | | |
| Beryllium | mg/L | 0.0001 | | <0.0001 | | <0.0001 | | |
| Cadmium | mg/L | 0.000015 | | <0.000015 | | <0.000015 | | |
| Chromium | mg/L | 0.001 | | 0.001 | | <0.001 | | |
| Cobalt | mg/L | 0.0001 | | 0.0006 | | <0.0001 | | |
| Copper | mg/L | 0.0001 | | 0.0004 | | 0.0006 | | |
| Lead | mg/L | 0.00002 | | 0.00004 | | 0.00005 | | |
| Molybdenum | mg/L | 0.0001 | | 0.0020 | | 0.0008 | | |
| Nickel | mg/L | 0.0002 | | 0.0039 | | 0.0003 | | |
| Silver | mg/L | 0.0001 | | <0.0001 | | <0.0001 | | |
| Thallium | mg/L | 0.00005 | | <0.00005 | | <0.00005 | | |
| Vanadium | mg/L | 0.0001 | | 0.0042 | | 0.0001 | | |
| Mercury | mg/L | 0.00002 | | <0.00002 | | <0.00002 | | |
| Anion Sum | meq/L | - | | 14.8 | | 10.7 | | |



Steve Garrett
Director of Laboratory Services

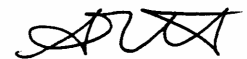
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Client I.D. | | G43-11 | G17-92 | Scale House | G13-92 | G27-97 |
|----------------------------------|----------------|------|-------------|-------------|-------------|-------------|-------------|
| | Sample I.D. | | 23-021433-1 | 23-021433-2 | 23-021433-3 | 23-021433-4 | 23-021433-5 |
| | Date Collected | | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | Units | R.L. | - | - | - | - | - |
| Cation Sum | meq/L | - | 14.7 | | 10.1 | | |
| % Difference | % | - | 0.373 | | 2.77 | | |
| Ion Ratio | - | - | 1.01 | | 1.06 | | |
| Sodium Adsorption Ratio | - | - | 11.6 | | 34.9 | | |
| TDS (Ion Sum Calc) | mg/L | 1 | 776 | | 568 | | |
| TDS(calc.)/EC(actual) | - | - | 0.576 | | 0.534 | | |
| Conductivity Calc | µmho/cm | - | 1270 | | 980 | | |
| Conductivity Calc / Conductivity | - | - | 0.940 | | 0.921 | | |
| Langelier Index(25°C) | - | - | 0.779 | | -0.0563 | | |
| Saturation pH (25°C) | - | - | 7.35 | | 8.83 | | |
| pH (Client Data) | pH units | - | 7.83 | 7.06 | 9.29 | 7.13 | 7.21 |
| Temperature (Client Data) | °C | - | 11.5 | 17.7 | 19.9 | 15.3 | 16.3 |



Steve Garrett
Director of Laboratory Services

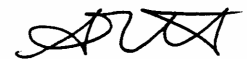
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | P6-91 | P1-91 | P5B-91 | FB#1 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-9 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 1590 | 1350 | 1070 | <5 | |
| TDS (Calc. from Cond.) | mg/L | 3 | 2550 | 1570 | 1190 | <3 | |
| Chloride | mg/L | 0.5 | 402 | 199 | 53.2 | 1.5 | |
| Nitrate (N) | mg/L | 0.05 | <0.40 | <0.40 | <0.40 | | |
| Nitrite (N) | mg/L | 0.05 | <0.40 | <0.40 | <0.40 | | |
| Sulphate | mg/L | 1 | 6 | 3 | 4 | | |
| BOD5 | mg/L | 3 | 9 | 5 | 4 | | |
| Phosphorus (Total) | mg/L | 0.01 | 0.42 | 0.19 | 0.43 | <0.01 | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 146 | 6.2 | 95.5 | | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 131 | 1.74 | 95.9 | 0.33 | |
| o-Phosphate (P) | mg/L | 0.002 | 0.009 | 0.006 | 0.003 | <0.002 | |
| Dissolved Organic Carbon | mg/L | 0.2 | 64.6 | 7.9 | 10.5 | 3.0 | |
| Phenolics | mg/L | 0.001 | 0.003 | <0.001 | <0.001 | | |
| COD | mg/L | 5 | 386 | 251 | 141 | | |
| Hardness (as CaCO3) | mg/L | 0.02 | 1190 | 1120 | 613 | 0.16 | |
| Aluminum | mg/L | 0.01 | 0.11 | 0.10 | 0.08 | | |
| Barium | mg/L | 0.001 | 0.419 | 0.268 | 0.462 | | |
| Boron | mg/L | 0.005 | 3.83 | 1.85 | 1.51 | 0.005 | |
| Calcium | mg/L | 0.02 | 334 | 287 | 195 | | |
| Iron | mg/L | 0.005 | 8.71 | 23.1 | 76.1 | 0.025 | |
| Magnesium | mg/L | 0.02 | 85.6 | 98.6 | 30.5 | | |



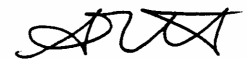
Steve Garrett
Director of Laboratory Services

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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | P6-91 | P1-91 | P5B-91 | FB#1 |
|------------|-------|----------|----------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-9 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - |
| Manganese | mg/L | 0.001 | 8.24 | 5.06 | 2.97 | 0.001 | |
| Potassium | mg/L | 0.1 | 101 | 18.7 | 85.3 | | |
| Silicon | mg/L | 0.01 | 10.1 | 9.94 | 9.97 | | |
| Sodium | mg/L | 0.2 | 398 | 246 | 82.4 | <0.2 | |
| Strontium | mg/L | 0.001 | 2.02 | 1.54 | 1.15 | | |
| Sulphur | mg/L | - | 9.77 | 7.81 | 4.67 | | |
| Titanium | mg/L | 0.005 | 0.007 | <0.005 | <0.005 | | |
| Zinc | mg/L | 0.005 | <0.005 | <0.005 | <0.005 | | |
| Beryllium | mg/L | 0.0001 | 0.0001 | <0.0001 | <0.0001 | | |
| Cadmium | mg/L | 0.000015 | <0.000015 | <0.000015 | <0.000015 | | |
| Chromium | mg/L | 0.001 | 0.011 | 0.003 | 0.003 | | |
| Cobalt | mg/L | 0.0001 | 0.0067 | 0.0029 | 0.0063 | | |
| Copper | mg/L | 0.0001 | 0.0008 | 0.0008 | 0.0012 | | |
| Lead | mg/L | 0.00002 | <0.00004 | <0.00004 | 0.00004 | | |
| Molybdenum | mg/L | 0.0001 | 0.0004 | 0.0002 | 0.0004 | | |
| Nickel | mg/L | 0.0002 | 0.0126 | 0.0107 | 0.0059 | | |
| Silver | mg/L | 0.0001 | <0.0001 | <0.0001 | <0.0001 | | |
| Thallium | mg/L | 0.00005 | <0.00005 | <0.00005 | <0.00005 | | |
| Vanadium | mg/L | 0.0001 | 0.0252 | 0.0070 | 0.0082 | | |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | <0.00002 | | |
| Anion Sum | meq/L | - | 43.3 | 32.6 | 23.0 | | |



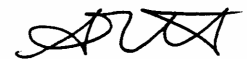
Steve Garrett
Director of Laboratory Services

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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 23-021433 - Rev. 0

| Parameter | Client I.D. | | P6-91 | P1-91 | P5B-91 | FB#1 |
|----------------------------------|----------------|------|-------------|-------------|-------------|-------------|
| | Sample I.D. | | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-9 |
| | Date Collected | | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | Units | R.L. | - | - | - | - |
| Cation Sum | meq/L | - | 49.5 | 35.2 | 26.1 | |
| % Difference | % | - | 6.74 | 3.82 | 6.43 | |
| Ion Ratio | - | - | 0.874 | 0.926 | 0.879 | |
| Sodium Adsorption Ratio | - | - | 5.03 | 3.19 | 1.45 | |
| TDS (Ion Sum Calc) | mg/L | 1 | 2390 | 1690 | 1240 | |
| TDS(calc.)/EC(actual) | - | - | 0.529 | 0.600 | 0.575 | |
| Conductivity Calc | µmho/cm | - | 3710 | 2580 | 1880 | |
| Conductivity Calc / Conductivity | - | - | 0.822 | 0.915 | 0.870 | |
| Langelier Index(25°C) | - | - | 1.66 | 1.43 | 0.987 | |
| Saturation pH (25°C) | - | - | 5.80 | 5.93 | 6.19 | |
| pH (Client Data) | pH units | - | 6.94 | 6.83 | 6.68 | |
| Temperature (Client Data) | °C | - | 15.6 | 14.2 | 15.6 | |



Steve Garrett
Director of Laboratory Services

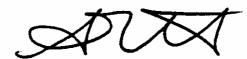
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | P6-91 | P1-91 | P5B-91 | Trip Blank |
|---------------------------------|-------|------|----------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-10 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-04 |
| | | | | - | - | - | - |
| Acetone | µg/L | 30 | <30 | <30 | <30 | <30 | |
| Benzene | µg/L | 0.5 | 2.8 | 1.6 | 1.5 | <0.5 | |
| Bromobenzene | µg/L | 0.4 | <0.4 | <0.4 | <0.4 | <0.4 | |
| Bromochloromethane | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Bromodichloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | |
| Bromoform | µg/L | 5 | <5 | <5 | <5 | <5 | |
| Bromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Carbon Tetrachloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Chlorobenzene | µg/L | 0.5 | 1.3 | <0.5 | <0.5 | <0.5 | |
| Chloroethane | µg/L | 3 | <3 | <3 | <3 | <3 | |
| Chloroform | µg/L | 1 | <1 | <1 | <1 | <1 | |
| Chloromethane (Methyl Chloride) | µg/L | 2 | <2 | <2 | <2 | <2 | |
| Chlorotoluene,2- | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Chlorotoluene,4- | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Dibromo-3-Chloropropane,1,2- | µg/L | 0.6 | <0.6 | <0.6 | <0.6 | <0.6 | |
| Dibromochloromethane | µg/L | 2 | <2 | <2 | <2 | <2 | |
| Ethylene Dibromide | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Dibromomethane | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | 0.7 | <0.5 | 0.6 | <0.5 | |



Steve Garrett
Director of Laboratory Services

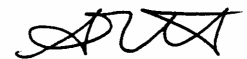
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | P6-91 | P1-91 | P5B-91 | Trip Blank |
|--|-------|------|----------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-10 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-04 |
| | | | | - | - | - | - |
| Dichlorodifluoromethane (Freon 12) | µg/L | 2 | <2 | <2 | <2 | <2 | |
| Dichloroethane, 1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloroethane, 1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloroethylene, 1,1- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloroethylene, 1,2-cis+trans- | µg/L | 0.7 | <0.7 | <0.7 | <0.7 | <0.7 | |
| Dichloroethylene, 1,2-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloropropane, 1,2- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloropropane, 1,3- | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Dichloropropane, 2,2- | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Dichloropropene, 1,1- | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 | |
| Dichloropropene, 1,3-cis- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloropropene, 1,3-cis+trans- (Calculated) | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dichloropropene, 1,3-trans- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Dioxane, 1,4- | µg/L | 20 | <20 | <20 | <20 | <20 | |
| Ethylbenzene | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | |
| Hexachlorobutadiene | µg/L | 0.6 | <0.6 | <0.6 | <0.6 | <0.6 | |
| Hexane | µg/L | 5 | <5 | <5 | <5 | <5 | |
| Isopropylbenzene | µg/L | 0.2 | 1.3 | <0.2 | <0.2 | <0.2 | |
| Methyl Butyl Ketone | µg/L | 5 | <5 | <5 | <5 | <5 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | <5 | <5 | <5 | <5 | |



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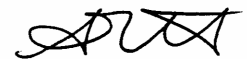
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Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | P6-91 | P1-91 | P5B-91 | Trip Blank |
|-----------------------------------|-------|------|----------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-10 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-04 |
| | | | | - | - | - | - |
| Methyl Ethyl Ketone | µg/L | 20 | | <20 | <20 | <20 | <20 |
| Methyl Isobutyl Ketone | µg/L | 20 | | <20 | <20 | <20 | <20 |
| Methyl tert-Butyl Ether (MTBE) | µg/L | 2 | | <2 | <2 | <2 | <2 |
| Naphthalene | µg/L | 0.4 | | 0.6 | <0.4 | 0.4 | <0.4 |
| n-Butylbenzene | µg/L | 0.4 | | <0.4 | <0.4 | <0.4 | <0.4 |
| n-Propylbenzene | µg/L | 0.1 | | 0.1 | <0.1 | <0.1 | <0.1 |
| p-Isopropyltoluene | µg/L | 0.2 | | <0.2 | <0.2 | <0.2 | <0.2 |
| sec-Butylbenzene | µg/L | 0.1 | | <0.1 | <0.1 | 0.1 | <0.1 |
| Styrene | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| tert-Butylbenzene | µg/L | 0.1 | | <0.1 | <0.1 | <0.1 | <0.1 |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Total Trihalomethanes | µg/L | 6 | | <6 | <6 | <6 | <6 |
| Toluene | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,3- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorobenzene,1,2,4- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,1- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane,1,1,2- | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichlorofluoromethane (Freon 11) | µg/L | 5 | | <5 | <5 | <5 | <5 |



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Director of Laboratory Services

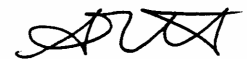
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Final Report

REPORT No: 23-021433 - Rev. 0

| Parameter | Client I.D. | | P6-91 | P1-91 | P5B-91 | Trip Blank |
|--------------------------|----------------|------|-------------|-------------|-------------|--------------|
| | Sample I.D. | | 23-021433-6 | 23-021433-7 | 23-021433-8 | 23-021433-10 |
| | Date Collected | | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-04 |
| | Units | R.L. | - | - | - | - |
| Trichloropropane, 1,2,3- | µg/L | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trimethylbenzene, 1,2,4- | µg/L | 1 | <1 | <1 | <1 | <1 |
| Trimethylbenzene, 1,3,5- | µg/L | 0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Vinyl Chloride | µg/L | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Xylene, m,p- | µg/L | 1 | 2 | <1 | <1 | <1 |
| Xylene, m,p,o- | µg/L | 1.1 | 3.2 | <1.1 | <1.1 | <1.1 |
| Xylene, o- | µg/L | 0.5 | 0.8 | <0.5 | <0.5 | <0.5 |



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GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04 Table (1 - 9)
- O'Reg 406/19 Table (1 - 9.1)
- RPI
- Coarse
- MISA
- Other:
- Record of Site
- SPLP Table (1-9.1)
- ICC
- Medium/Fine
- PWQO
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

23108116
23-021433

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations?

Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: JP2G Consultants Inc
Contact: Geneviève Marcoux
Tel: 647-884-7274
Email: Genevievem@jp2g.com

Address: 1150 Morrison Pr. Suite 410
Quote #: G2988
P.O. #:

Invoicing Address (if different):
Project Name or #: 17-6021G
Additional Info: Clarence Rockland WRS

| ANALYSES REQUESTED | | Suspected Highly Contaminated |
|--------------------|-------------|-------------------------------|
| Item #1 (S) | Item #2 (R) | |
| VOC | | |

TURNAROUND SERVICE REQUESTED (see back page)
*Must be arranged in advance
 Platinum* 200% Surcharge
 Gold* 100% Surcharge
 Silver 50% Surcharge
 Bronze 25% Surcharge
 Standard 5-7 days
 Specific Date: _____

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. (Watertrax) | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N |
|---------|--|--------------------|-----------------|---------------------------|----------------|---|-------|---|---|---|--|--|--|--|--|---|-------|--|-------------------|--------------------|
| | | | | | | pH | Temp. | | | | | | | | | | | | | |
| 1 | G43-11 | | GW | 23-08-16 | 11:30am | X | | | | | | | | | | | | | 87 | Y |
| 2 | G17-92 | | " | " | 11:45am | | X | | | | | | | | | | | | 5 | Y |
| 3 | Scale House | | " | " | 12:00pm | X | | | | | | | | | | | | | 87 | N |
| 4 | G13-92 | | " | " | 12:30pm | | X | | | | | | | | | | | | 5 | Y |
| 5 | G27-97 | | " | " | 1:00pm | | X | | | | | | | | | | | | 5 | Y |
| 6 | P6-91 | | " | " | 1:20pm | X | | X | | | | | | | | | | | 109 | Y |
| 7 | P1-91 | | " | " | 1:50pm | X | | X | | | | | | | | | | | 109 | Y |
| 8 | P5B-91 | | " | " | 2:30pm | X | | X | | | | | | | | | | | 109 | Y |
| 9 | FB #1 | | " | " | | | | | X | | | | | | | | | | 5 | |
| 10 | Trip Blank | | " | 23/08/04 | 8:20 | | | | | X | | | | | | | | | 2 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|---------------------------|---|----------------------------------|--|--|--|------------------------------------|-------------------------|--|
| Print: Brittany Holland | Submitted by: " | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): Bhubasha | Signature: [Signature] | Date Received (yy-mm-dd): 23/08/16 | Time Received: 16:00hrs | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Sign: Brittany Holland | Date (yy-mm-dd): 23-08-16 | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces | Report by Email <input type="checkbox"/> | Invoice by Email <input checked="" type="checkbox"/> | Sample Temperature °C: 11.5 | Labeled by: | | |
| | | Drop Off <input checked="" type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | |
| | | Caduceon (Pick-up) <input type="checkbox"/> | | | | | | | |

Comments: * Lowest Detection Limit
 5 → ②, ④, ⑤, ⑨ - R, Baby, NP, M, DOC x4 ⑩ - 2 VOC
 7 → ①, ③ - pet, R, NP, M, Hg, phenol, DOC x2
 9 → ⑥, ⑦, ⑧ - pet, R, NP, M, Hg, phenol, 2VOC, DOC x3

C.O.C.: G 107239

REPORT No: 23-021445 - Rev. 0

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.
 Ottawa, ON K2H 8S9

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Genevieve Marcoux

DATE RECEIVED: 2023-Aug-16
 DATE REPORTED: 2023-Aug-31
 SAMPLE MATRIX: Surface Water

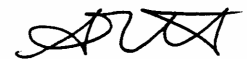
CUSTOMER PROJECT: 17-6021G - Clarence Rockland W
 P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|--------------------------------|-----|---------------|------------|---------------|--------------------------|--------------------------|
| Anions (Liquid) | 5 | OTTAWA | VKASYAN | 2023-Aug-21 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 3 | KINGSTON | MDUBIEN | 2023-Aug-18 | BOD-001 | SM 5210B |
| COD (Liquid) | 3 | KINGSTON | EHINCH | 2023-Aug-18 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 5 | OTTAWA | SBOUDREAU | 2023-Aug-18 | COND-02/PH-02/A LK-02 | SM 2510B/4500H/ 2320B |
| DOC/DIC (Liquid) | 5 | OTTAWA | VKASYAN | 2023-Aug-17 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 3 | OTTAWA | STAILLON | | CP-028 | MECP E3196 |
| ICP/MS Total (Liquid) | 3 | OTTAWA | TPRICE | 2023-Aug-18 | D-ICPMS-01 | EPA 6020 |
| ICP/OES Total (Liquid) | 5 | OTTAWA | NHOGAN | 2023-Aug-18 | D-ICP-01 | SM 3120B |
| ICP/OES (Liquid) | 3 | OTTAWA | NHOGAN | 2023-Aug-17 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 3 | OTTAWA | TBENNETT | 2023-Aug-23 | D-HG-02 | SM 3112B |
| Ammonia & o-Phosphate (Liquid) | 5 | KINGSTON | KDIBBITS | 2023-Aug-28 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 3 | KINGSTON | JMACINNES | 2023-Aug-30 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 5 | KINGSTON | KDIBBITS | 2023-Aug-25 | TPTKN-001 | MECP E3516.2 |

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



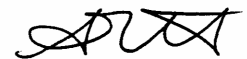
Steve Garrett
Director of Laboratory Services

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021445 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS6 | GS21 | GS22 | GS17 | S1 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021445-1 | 23-021445-2 | 23-021445-3 | 23-021445-4 | 23-021445-5 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 96 | 122 | 119 | 118 | 101 |
| TDS (Calc. from Cond.) | mg/L | 3 | | 138 | 201 | 253 | 254 | 153 |
| Chloride | mg/L | 0.5 | | 18.1 | 30.5 | 85.0 | 84.1 | 24.6 |
| Nitrate (N) | mg/L | 0.05 | | 0.94 | | 0.07 | 0.05 | |
| Nitrite (N) | mg/L | 0.05 | | <0.05 | | <0.05 | <0.05 | |
| Sulphate | mg/L | 1 | | 13 | | 7 | 7 | |
| BOD5 | mg/L | 3 | | <3 | | <3 | <3 | |
| Phosphorus (Total) | mg/L | 0.01 | | 0.04 | 0.08 | 0.08 | 0.09 | 0.04 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | 0.6 | | 0.8 | 0.8 | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | 0.07 | 0.08 | 0.07 | 0.08 | <0.05 |
| Ammonia (N)-unionized | mg/L | 0.01 | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 19.9 | 7.6 | 27.4 | 27.0 | 22.3 |
| Phenolics | mg/L | 0.001 | | <0.001 | | <0.001 | <0.001 | |
| COD | mg/L | 5 | | 46 | | 59 | 57 | |
| Aluminum | mg/L | 0.01 | | 0.14 | | 0.13 | 0.12 | |
| Hardness (as CaCO3) | mg/L | - | | 117 | 123 | 116 | 126 | 115 |
| Aluminum (Total) | mg/L | 0.01 | | 0.27 | | 0.43 | 0.87 | |
| Barium (Total) | mg/L | 0.001 | | 0.032 | | 0.025 | 0.030 | |
| Boron (Total) | mg/L | 0.005 | | 0.012 | 0.046 | 0.011 | 0.013 | 0.011 |
| Calcium (Total) | mg/L | 0.02 | | 32.9 | | 32.6 | 34.9 | |
| Iron (Total) | mg/L | 0.005 | | 1.49 | 0.072 | 1.13 | 1.62 | 1.01 |



Steve Garrett
Director of Laboratory Services

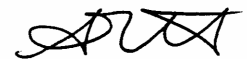
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CADUCEON Environmental Laboratories Certificate of Analysis

Final Report

REPORT No: 23-021445 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS6 | GS21 | GS22 | GS17 | S1 |
|-------------------|-------|----------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021445-1 | 23-021445-2 | 23-021445-3 | 23-021445-4 | 23-021445-5 |
| | | | Date Collected | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | | - | - | - | - | - |
| Magnesium (Total) | mg/L | 0.02 | | 8.36 | | 8.43 | 9.40 | |
| Manganese (Total) | mg/L | 0.001 | | 0.090 | 0.030 | 0.029 | 0.034 | 0.067 |
| Potassium (Total) | mg/L | 0.1 | | 1.0 | | 1.3 | 1.6 | |
| Silicon (Total) | mg/L | 0.01 | | 6.12 | | 5.96 | 7.13 | |
| Silica (Total) | mg/L | 0.02 | | 13.1 | | 12.8 | 15.3 | |
| Sodium (Total) | mg/L | 0.2 | | 10.6 | 26.9 | 44.6 | 47.2 | 14.0 |
| Strontium (Total) | mg/L | 0.001 | | 0.117 | | 0.116 | 0.125 | |
| Sulphur (Total) | mg/L | 0.1 | | 4.76 | | 2.76 | 2.94 | |
| Titanium (Total) | mg/L | 0.005 | | 0.011 | | 0.021 | 0.048 | |
| Zinc (Total) | mg/L | 0.005 | | 0.007 | | 0.005 | 0.005 | |
| Beryllium (Total) | mg/L | 0.0001 | | <0.0001 | | <0.0001 | <0.0001 | |
| Cadmium (Total) | mg/L | 0.000015 | | 0.000029 | | 0.000017 | 0.000028 | |
| Cobalt (Total) | mg/L | 0.0001 | | 0.0003 | | 0.0003 | 0.0005 | |
| Copper (Total) | mg/L | 0.0001 | | 0.0015 | | 0.0023 | 0.0029 | |
| Lead (Total) | mg/L | 0.00002 | | 0.00028 | | 0.00024 | 0.00035 | |
| Nickel (Total) | mg/L | 0.0002 | | 0.0016 | | 0.0018 | 0.0030 | |
| Silver (Total) | mg/L | 0.0001 | | <0.0001 | | <0.0001 | <0.0001 | |
| Thallium (Total) | mg/L | 0.00005 | | <0.00005 | | <0.00005 | 0.00006 | |
| Vanadium (Total) | mg/L | 0.0001 | | 0.0012 | | 0.0020 | 0.0027 | |
| Mercury | mg/L | 0.00002 | | <0.00002 | | <0.00002 | <0.00002 | |
| Anion Sum | meq/L | - | | 2.76 | | 4.93 | 4.88 | |



Steve Garrett
Director of Laboratory Services

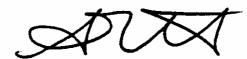
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Final Report

REPORT No: 23-021445 - Rev. 0

| Parameter | Client I.D. | | GS6 | GS21 | GS22 | GS17 | S1 |
|----------------------------------|-------------|----------------|-------------|-------------|-------------|-------------|-------------|
| | Sample I.D. | Date Collected | 23-021445-1 | 23-021445-2 | 23-021445-3 | 23-021445-4 | 23-021445-5 |
| | Units | R.L. | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 | 2023-08-16 |
| | | | - | - | - | - | - |
| Cation Sum | meq/L | - | 2.90 | | 4.36 | 4.70 | |
| % Difference | % | - | 2.47 | | 6.13 | 1.88 | |
| Ion Ratio | - | - | 0.952 | | 1.13 | 1.04 | |
| Sodium Adsorption Ratio | - | - | 0.427 | | 1.80 | 1.83 | |
| TDS (Ion Sum Calc) | mg/L | 1 | 147 | | 252 | 257 | |
| TDS(calc.)/EC(actual) | - | - | 0.545 | | 0.516 | 0.525 | |
| Conductivity Calc | µmho/cm | - | 282 | | 487 | 499 | |
| Conductivity Calc / Conductivity | - | - | 1.05 | | 0.996 | 1.02 | |
| Langelier Index(25°C) | - | - | -0.494 | | -0.335 | -0.269 | |
| Saturation pH (25°C) | - | - | 7.89 | | 7.85 | 7.82 | |
| pH (Client Data) | pH units | - | 7.23 | 7.63 | 7.72 | 7.77 | 7.80 |
| Temperature (Client Data) | °C | - | 16.9 | 16.6 | 18.5 | 10.7 | 16.8 |



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Director of Laboratory Services

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GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

Kingston
 Ottawa
 Richmond Hill
 Barrie
 Windsor

TESTING REQUIREMENTS

O'Reg 153/04 Table (1-9) Record of Site
 O'Reg 406/19 Table (1-9.1) SPLP Table (1-9.1)
 RPI ICC Agricultural
 Coarse Medium/Fine O'Reg 558 TCLP
 MISA PWQO Landfill Monitoring
 Other:

REPORT NUMBER (Lab Use)

23/08/16
 23-021445

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: JP2G Consultants Inc
 Contact: Geneviève Marcoux
 Tel: 647-884-7274 Fax:
 Email: Genevieve.m@jp2g.com

Address: 1150 Morrison Dr.
 Suite 410
 Quote #: Q2988
 P.O. #:

Invoicing Address (if different):
 Project Name or #: 17-60216
 Additional Info: Clarence Rockland WDS

| ANALYSES REQUESTED | | | | | | | | | | Suspected Highly Contaminated |
|--------------------|------------|---------|--|--|--|--|--|--|--|-------------------------------|
| ITEM #3(R) | ITEM #4(S) | ITEM #5 | | | | | | | | |
| X | X | X | | | | | | | | |

| TURNAROUND SERVICE REQUESTED (see back page) | |
|--|----------------|
| *Must be arranged in advance | |
| <input type="checkbox"/> Platinum* | 200% Surcharge |
| <input type="checkbox"/> Gold* | 100% Surcharge |
| <input type="checkbox"/> Silver | 50% Surcharge |
| <input type="checkbox"/> Bronze | 25% Surcharge |
| <input checked="" type="checkbox"/> Standard | 5-7 days |
| <input type="checkbox"/> Specific Date: | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. (Watertrax) | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | |
|---------|--|--------------------|-----------------|---------------------------|----------------|---|-------|--|--|--|--|--|--|--|--|---|-------|------|-------------------|--------------------|---|
| | | | | | | pH | Temp. | | | | | | | | | | | | | | |
| 1 | GS6 | | SW | 23-08-16 | 8:00am | X | | | | | | | | | | | | 7.23 | 16.9 | 48 | Y |
| 2 | GS21 | | SW | " | 8:30am | X | | | | | | | | | | | | 7.63 | 16.6 | 54 | " |
| 3 | GS22 | | " | " | 9:30am | X | | | | | | | | | | | | 7.72 | 18.5 | 898 | " |
| 4 | GS17 | | " | " | 10:00am | X | | | | | | | | | | | | 7.77 | 10.7 | 898 | " |
| 5 | SI | | " | " | 10:16am | X | | | | | | | | | | | | 7.80 | 16.8 | 54 | " |
| 6 | Frip Blank | | | 23/08/16 | 8:20am | X | | | | | | | | | | | | | | 2 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|--------------------------------|---|---|---|---|--|------------------------------------|-------------------------|--|
| Print: Britany Holland | Submitted by: " | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): Babhasa | Signature: [Signature] | Date Received (yy-mm-dd): 23/08/16 | Time Received: 16:00hrs | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Sign: Britany Holland | Date (yy-mm-dd)/Time: 23-08-16 | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces <input checked="" type="checkbox"/> | Report by Email <input checked="" type="checkbox"/> | Invoice by Email <input type="checkbox"/> | Sample Temperature °C: 10.6 | Labeled by: | | |
| | | Drop Off <input checked="" type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | |
| | | Caduceon (Pick-up) <input type="checkbox"/> | | | | | | | |

Comments: *Lowest Detection Limit ①③④-8 → Pet, R, NP, 2M, phenol, Hg, DOC x 3
 ②⑤-4 → R, NP, M, DOC x 2
 ⑥ - over-blank

C.O.C.: G 096280

REPORT No: 23-021298 - Rev. 0

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.
 Ottawa, ON K2H 8S9

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Genevieve Marcoux

DATE RECEIVED: 2023-Aug-16
 DATE REPORTED: 2023-Sep-06
 SAMPLE MATRIX: Surface Water

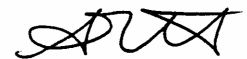
CUSTOMER PROJECT: Clarence-Rockland WDS
 P.O. NUMBER: 17-6021 G

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|--------------------------------|-----|---------------|------------|---------------|--------------------------|--------------------------|
| Anions (Liquid) | 7 | OTTAWA | PCURIEL | 2023-Aug-16 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 5 | KINGSTON | MDUBIEN | 2023-Aug-17 | BOD-001 | SM 5210B |
| COD (Liquid) | 5 | KINGSTON | EHINCH | 2023-Aug-22 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 7 | OTTAWA | MDON | 2023-Aug-17 | COND-02/PH-02/A LK-02 | SM 2510B/4500H/ 2320B |
| DOC/DIC (Liquid) | 7 | OTTAWA | VKASYAN | 2023-Aug-16 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 5 | OTTAWA | STAILLON | | CP-028 | MECP E3196 |
| ICP/MS Total (Liquid) | 5 | OTTAWA | TPRICE | 2023-Aug-18 | D-ICPMS-01 | EPA 6020 |
| ICP/OES Total (Liquid) | 7 | OTTAWA | NHOGAN | 2023-Aug-18 | D-ICP-01 | SM 3120B |
| ICP/OES (Liquid) | 5 | OTTAWA | NHOGAN | 2023-Aug-18 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 5 | OTTAWA | TBENNETT | 2023-Aug-18 | D-HG-02 | SM 3112B |
| Ammonia & o-Phosphate (Liquid) | 7 | KINGSTON | AMANIYA | 2023-Aug-18 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 5 | KINGSTON | JMACINNES | 2023-Aug-21 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 7 | KINGSTON | KDIBBITS | 2023-Aug-25 | TPTKN-001 | MECP E3516.2 |

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

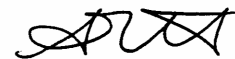


Steve Garrett
Director of Laboratory Services

CADUCEON Environmental Laboratories Certificate of Analysis

Final Report
REPORT No: 23-021298 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS20 | GS15 | GS11 | GS12 | GS8 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021298-1 | 23-021298-2 | 23-021298-3 | 23-021298-4 | 23-021298-5 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 133 | 257 | 656 | 260 | 113 |
| Conductivity @25°C | uS/cm | 1 | | | | | 836 | 341 |
| TDS (Calc. from Cond.) | mg/L | 3 | | | | | 441 | 175 |
| Chloride | mg/L | 0.5 | | 34.7 | 100 | 186 | 99.6 | 35.7 |
| Nitrate (N) | mg/L | 0.05 | | 3.73 | 0.08 | 2.29 | | |
| Nitrite (N) | mg/L | 0.05 | | <0.05 | <0.05 | 0.08 | | |
| Sulphate | mg/L | 1 | | 18 | 33 | 18 | | |
| BOD5 | mg/L | 3 | | <3 | 6 | 13 | | |
| Phosphorus (Total) | mg/L | 0.01 | | 0.09 | 0.08 | 0.05 | 0.11 | 0.06 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | 1.0 | 2.6 | 7.1 | | |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | 0.07 | 0.06 | 3.60 | 0.18 | 0.06 |
| Ammonia (N)-unionized | mg/L | 0.01 | | <0.01 | <0.01 | 0.05 | 0.03 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 11.3 | 13.8 | 14.6 | 13.2 | 25.6 |
| Phenolics | mg/L | 0.001 | | <0.001 | <0.001 | <0.001 | | |
| COD | mg/L | 5 | | 30 | 80 | 120 | | |
| Aluminum | mg/L | 0.01 | | 0.05 | 0.03 | 0.06 | | |
| Hardness (as CaCO3) | mg/L | - | | 125 | 234 | 484 | 221 | 121 |
| Aluminum (Total) | mg/L | 0.01 | | 1.07 | 0.04 | 0.19 | | |
| Barium (Total) | mg/L | 0.001 | | 0.041 | 0.043 | 0.144 | | |
| Boron (Total) | mg/L | 0.005 | | 0.079 | 0.816 | 1.92 | 0.784 | 0.016 |
| Calcium (Total) | mg/L | 0.02 | | 29.1 | 43.3 | 128 | | |



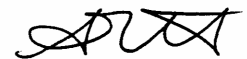
Steve Garrett
Director of Laboratory Services

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Final Report
REPORT No: 23-021298 - Rev. 0

| | | | Client I.D. | GS20 | GS15 | GS11 | GS12 | GS8 |
|-------------------|-------|--------------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021298-1 | 23-021298-2 | 23-021298-3 | 23-021298-4 | 23-021298-5 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-15 |
| Parameter | Units | R.L. | | | | | | |
| Iron (Total) | mg/L | 0.005 | - | 1.58 | 0.033 | 1.34 | 0.013 | 0.744 |
| Magnesium (Total) | mg/L | 0.02 | - | 12.7 | 30.5 | 39.8 | | |
| Manganese (Total) | mg/L | 0.001 | - | 0.149 | 0.163 | 1.05 | 0.007 | 0.027 |
| Potassium (Total) | mg/L | 0.1 | - | 3.7 | 16.1 | 29.5 | | |
| Silicon (Total) | mg/L | 0.01 | - | 6.37 | 0.47 | 5.12 | | |
| Silica (Total) | mg/L | 0.02 | - | 13.6 | 1.01 | 11.0 | | |
| Sodium (Total) | mg/L | 0.2 | - | 28.9 | 88.6 | 172 | 83.5 | 20.3 |
| Strontium (Total) | mg/L | 0.001 | - | 0.146 | 0.381 | 0.882 | | |
| Sulphur (Total) | mg/L | 0.1 | - | 5.38 | 11.1 | 7.49 | | |
| Titanium (Total) | mg/L | 0.005 | - | 0.063 | <0.005 | 0.013 | | |
| Zinc (Total) | mg/L | 0.005 | - | 0.006 | 0.005 | 0.005 | | |
| Beryllium (Total) | mg/L | 0.0001 | - | <0.0001 | <0.0001 | <0.0001 | | |
| Cadmium (Total) | mg/L | 0.00001 5 | - | 0.000030 | <0.000015 | 0.000020 | | |
| Cobalt (Total) | mg/L | 0.0001 | - | 0.0008 | 0.0003 | 0.0031 | | |
| Copper (Total) | mg/L | 0.0001 | - | 0.0045 | 0.0006 | 0.0042 | | |
| Lead (Total) | mg/L | 0.00002 | - | 0.00041 | 0.00006 | 0.00019 | | |
| Nickel (Total) | mg/L | 0.0002 | - | 0.0042 | 0.0039 | 0.0101 | | |
| Silver (Total) | mg/L | 0.0001 | - | <0.0001 | <0.0001 | <0.0001 | | |
| Thallium (Total) | mg/L | 0.00005 | - | <0.00005 | <0.00005 | <0.00005 | | |
| Vanadium (Total) | mg/L | 0.0001 | - | 0.0027 | 0.0003 | 0.0034 | | |
| Mercury | mg/L | 0.00002 | - | <0.00002 | <0.00002 | <0.00002 | | |



Steve Garrett
Director of Laboratory Services

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Final Report

REPORT No: 23-021298 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS20 | GS15 | GS11 | GS12 | GS8 |
|----------------------------------|----------|------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-021298-1 | 23-021298-2 | 23-021298-3 | 23-021298-4 | 23-021298-5 |
| | | | Date Collected | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-14 | 2023-08-15 |
| | | | | - | - | - | - | - |
| Anion Sum | meq/L | - | | 4.28 | 8.64 | 18.9 | | |
| Cation Sum | meq/L | - | | 3.95 | 8.96 | 18.3 | | |
| % Difference | % | - | | 4.02 | 1.77 | 1.63 | | |
| Ion Ratio | - | - | | 1.08 | 0.965 | 1.03 | | |
| Sodium Adsorption Ratio | - | - | | 1.12 | 2.52 | 3.40 | | |
| TDS (Ion Sum Calc) | mg/L | 1 | | 225 | 466 | 984 | | |
| TDS(calc.)/EC(actual) | - | - | | 0.561 | 0.564 | 0.565 | | |
| Conductivity Calc | µmho/cm | - | | 410 | 854 | 1660 | | |
| Conductivity Calc / Conductivity | - | - | | 1.02 | 1.03 | 0.954 | | |
| Langelier Index(25°C) | - | - | | -0.726 | 0.684 | 1.41 | | |
| Saturation pH (25°C) | - | - | | 7.85 | 7.42 | 6.58 | | |
| pH (Client Data) | pH units | - | | 6.70 | 8.26 | 7.66 | 8.50 | 7.28 |
| Temperature (Client Data) | °C | - | | 16.3 | 23.7 | 16.9 | 24.1 | 16.8 |



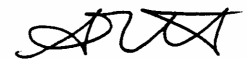
Steve Garrett
Director of Laboratory Services

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Final Report
REPORT No: 23-021298 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | Dup#3 |
|-----------------------------|-------|-------|----------------|--------|
| | | | S2 | |
| | | | Sample I.D. | |
| | | | Date Collected | |
| | | | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 105 | 105 |
| Chloride | mg/L | 0.5 | 39.3 | 39.6 |
| Nitrate (N) | mg/L | 0.05 | 0.56 | 0.56 |
| Nitrite (N) | mg/L | 0.05 | <0.05 | <0.05 |
| Sulphate | mg/L | 1 | 13 | 13 |
| BOD5 | mg/L | 3 | 4 | 3 |
| Phosphorus (Total) | mg/L | 0.01 | 0.08 | 0.08 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | 0.9 | 0.9 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | 0.06 | 0.06 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | 34.0 | 30.6 |
| Phenolics | mg/L | 0.001 | <0.001 | <0.001 |
| COD | mg/L | 5 | 93 | 62 |
| Aluminum | mg/L | 0.01 | 0.13 | 0.13 |
| Hardness (as CaCO3) | mg/L | - | 116 | 124 |
| Aluminum (Total) | mg/L | 0.01 | 0.33 | 0.36 |
| Barium (Total) | mg/L | 0.001 | 0.029 | 0.031 |
| Boron (Total) | mg/L | 0.005 | 0.014 | 0.013 |
| Calcium (Total) | mg/L | 0.02 | 32.5 | 34.8 |
| Iron (Total) | mg/L | 0.005 | 1.36 | 1.46 |
| Magnesium (Total) | mg/L | 0.02 | 8.47 | 9.07 |



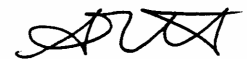
Steve Garrett
Director of Laboratory Services

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Final Report
REPORT No: 23-021298 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | Dup#3 | |
|-------------------|-------|----------|----------------|-------------|-------------|
| | | | S2 | | |
| | | | Sample I.D. | 23-021298-6 | 23-021298-7 |
| | | | Date Collected | 2023-08-15 | 2023-08-15 |
| | | | - | - | |
| Manganese (Total) | mg/L | 0.001 | 0.060 | 0.063 | |
| Potassium (Total) | mg/L | 0.1 | 1.7 | 1.8 | |
| Silicon (Total) | mg/L | 0.01 | 5.99 | 6.44 | |
| Silica (Total) | mg/L | 0.02 | 12.8 | 13.8 | |
| Sodium (Total) | mg/L | 0.2 | 21.3 | 22.6 | |
| Strontium (Total) | mg/L | 0.001 | 0.120 | 0.129 | |
| Sulphur (Total) | mg/L | 0.1 | 4.15 | 4.50 | |
| Titanium (Total) | mg/L | 0.005 | 0.015 | 0.016 | |
| Zinc (Total) | mg/L | 0.005 | <0.005 | 0.005 | |
| Beryllium (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | |
| Cadmium (Total) | mg/L | 0.000015 | 0.000027 | 0.000031 | |
| Cobalt (Total) | mg/L | 0.0001 | 0.0003 | 0.0003 | |
| Copper (Total) | mg/L | 0.0001 | 0.0023 | 0.0024 | |
| Lead (Total) | mg/L | 0.00002 | 0.00027 | 0.00029 | |
| Nickel (Total) | mg/L | 0.0002 | 0.0019 | 0.0019 | |
| Silver (Total) | mg/L | 0.0001 | <0.0001 | <0.0001 | |
| Thallium (Total) | mg/L | 0.00005 | <0.00005 | <0.00005 | |
| Vanadium (Total) | mg/L | 0.0001 | 0.0016 | 0.0016 | |
| Mercury | mg/L | 0.00002 | <0.00002 | <0.00002 | |
| Anion Sum | meq/L | - | 3.52 | 3.52 | |
| Cation Sum | meq/L | - | 3.37 | 3.60 | |



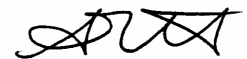
Steve Garrett
Director of Laboratory Services

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Final Report
REPORT No: 23-021298 - Rev. 0

| Parameter | Client I.D. | | S2 | Dup#3 |
|----------------------------------|----------------|------|-------------|-------------|
| | Sample I.D. | | 23-021298-6 | 23-021298-7 |
| | Date Collected | | 2023-08-15 | 2023-08-15 |
| | Units | R.L. | - | - |
| % Difference | % | - | 2.24 | 1.17 |
| Ion Ratio | - | - | 1.05 | 0.977 |
| Sodium Adsorption Ratio | - | - | 0.860 | 0.882 |
| TDS (Ion Sum Calc) | mg/L | 1 | 183 | 188 |
| TDS(calc.)/EC(actual) | - | - | 0.530 | 0.545 |
| Conductivity Calc | µmho/cm | - | 352 | 362 |
| Conductivity Calc / Conductivity | - | - | 1.02 | 1.05 |
| Langelier Index(25°C) | - | - | -0.938 | -0.921 |
| Saturation pH (25°C) | - | - | 7.88 | 7.86 |



Steve Garrett
Director of Laboratory Services

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GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- London
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04
- O'Reg 406/19
- RPI
- Coarse
- MISA
- Other:
- Table (1 - 9)
- Table (1 - 9.1)
- ICC
- Medium/Fine
- PWQO
- Record of Site
- SPLP Table (1 - 9.1)
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

Aug 15. 23
23-021298

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations? Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

| | | | | | | | | | | | | | |
|------------------------------------|--|--------------------------------------|--|-------------------------------------|--|-------------------------------|--|--|--|--|---|--|--|
| Organization: JP2G Consultants Inc | | Address: 1150 Morrison Pr. Suite 410 | | Invoicing Address (if different): | | ANALYSES REQUESTED | | | | | TURNAROUND SERVICE REQUESTED (see back page) | | |
| Contact: Geneviève Marcoux | | Tel: 647-884-7274 Fax: [blank] | | Quote #: Q 2988 | | | | | | | | | |
| Email: genevieve.m@jp2g.com | | P.O. #: | | Additional Info (email, cell, etc): | | Suspected Highly Contaminated | | | | | | | |

* Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil = Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | | |
|---------|--|--------|-----------------|---------------------------|----------------|---|--|--|--|--|--|--|--|--|--|---|-------|-------|-------------------|--------------------|----|---|
| | | | | | | By Using A Check Mark In The Box Provided | | | | | | | | | | | pH | Temp. | | | | |
| 1 | GS20 | | SW | 23-08-14 | 9:15am | X | | | | | | | | | | | | | 6.70 | 16.3 | 8 | Y |
| 2 | GS15 | | SW | ↓ | 11:30am | X | | | | | | | | | | | | | 8.26 | 23.7 | 8 | ↓ |
| 3 | GS11 | | ↓ | ↓ | 12:50pm | X | | | | | | | | | | | | | 7.66 | 16.9 | 8 | ↓ |
| 4 | GS12 | | ↓ | ↓ | 1:15pm | X | | | | | | | | | | | | | 8.50 | 24.1 | 54 | ↓ |
| 5 | GS8 | | ↓ | 23-08-15 | 9:00am | X | | | | | | | | | | | | | 7.28 | 16.8 | 54 | ↓ |
| 6 | S2 | | ↓ | ↓ | 10:30am | X | | | | | | | | | | | | | 8.26 | 23.7 | 8 | ↓ |
| 7 | Dup #3 | | ↓ | ↓ | | X | | | | | | | | | | | | | | | 8 | |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|-----------------------|---|----------------------------------|--|--|--|-----------------------------|---------------------------|-------------|
| Sampled by: | Submitted by: | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): | Signature: | | Date Received (yy-mm-dd): | |
| Print: Brittany Holland | = | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces | Report by Email <input type="checkbox"/> | Received By (signature): | Date Received (yy-mm-dd): 23/08/16 | | Time Received: 7:30 | |
| Sign: Brittany Holland | = | Drop Off <input checked="" type="checkbox"/> | | Invoice by Email <input checked="" type="checkbox"/> | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Sample Temperature °C: 13.6 | | Labeled by: |
| Date (yy-mm-dd)/Time: | Date (yy-mm-dd)/Time: | Caduceon (Pick-up) <input type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | | | | | |

Comments: Lowest detection limit 1-3, 6, 7 Pb, Cr, Zn, Ni, POC, Mg, plume 1
 (4), (5) Al, Mn, POC, NP
 Page 1 of 1
G 096280

C.O.C.: G 110098

REPORT No: 23-026595 - Rev. 0

Report To:

Jp2g Consultants Inc
 1150 Morrison Dr.
 Ottawa, ON K2H 8S9

CADUCEON Environmental Laboratories

2378 Holly Lane
 Ottawa, ON K1V 7P1

Attention: Genevieve Marcoux

DATE RECEIVED: 2023-Sep-29
 DATE REPORTED: 2023-Oct-17
 SAMPLE MATRIX: Surface Water

CUSTOMER PROJECT: 17-6021G - Clarence Rockland W
 P.O. NUMBER:

| Analyses | Qty | Site Analyzed | Authorized | Date Analyzed | Lab Method | Reference Method |
|--------------------------------|-----|---------------|------------|---------------|--------------------------|--------------------------|
| Anions (Liquid) | 11 | OTTAWA | VKASYAN | 2023-Oct-03 | A-IC-01 | SM 4110B |
| BOD5 (Liquid) | 6 | KINGSTON | JWOLFE2 | 2023-Oct-05 | BOD-001 | SM 5210B |
| COD (Liquid) | 6 | KINGSTON | EHINCH | 2023-Oct-03 | COD-001 | SM 5220D |
| Cond/pH/Alk Auto (Liquid) | 11 | OTTAWA | SBOUDREAU | 2023-Oct-03 | COND-02/PH-02/A LK-02 | SM 2510B/4500H/ 2320B |
| DOC/DIC (Liquid) | 11 | OTTAWA | VKASYAN | 2023-Oct-05 | C-OC-01 | EPA 415.2 |
| Ion Balance (Calc.) | 6 | OTTAWA | STAILLON | | CP-028 | MECP E3196 |
| ICP/MS Total (Liquid) | 6 | OTTAWA | TPRICE | 2023-Oct-04 | D-ICPMS-01 | EPA 6020 |
| ICP/OES Total (Liquid) | 11 | OTTAWA | NHOGAN | 2023-Oct-03 | D-ICP-01 | SM 3120B |
| ICP/OES (Liquid) | 6 | OTTAWA | NHOGAN | 2023-Oct-02 | D-ICP-01 | SM 3120B |
| Mercury (Liquid) | 6 | OTTAWA | TBENNETT | 2023-Oct-03 | D-HG-02 | SM 3112B |
| Ammonia & o-Phosphate (Liquid) | 11 | KINGSTON | KDIBBITS | 2023-Oct-05 | NH3-001 | SM 4500NH3 |
| Phenols (Liquid) | 6 | KINGSTON | JMACINNES | 2023-Oct-10 | PHEN-01 | MECP E3179 |
| TP & TKN (Liquid) | 11 | KINGSTON | KDIBBITS | 2023-Oct-13 | TPTKN-001 | MECP E3516.2 |

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *



Michelle Dubien
Data Specialist

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Final Report

REPORT No: 23-026595 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | S1 | S2 | GS6 | GS8 | GS11 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-026595-1 | 23-026595-2 | 23-026595-3 | 23-026595-4 | 23-026595-5 |
| | | | Date Collected | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 135 | 159 | 119 | 161 | 804 |
| TDS (Calc. from Cond.) | mg/L | 3 | | 214 | 227 | 174 | 225 | 1070 |
| Chloride | mg/L | 0.5 | | 43.1 | 38.2 | 24.7 | 33.9 | 215 |
| Nitrate (N) | mg/L | 0.05 | | | 1.03 | 1.59 | | 1.67 |
| Nitrite (N) | mg/L | 0.05 | | | <0.05 | <0.05 | | <0.40 |
| Sulphate | mg/L | 1 | | | 25 | 22 | | 11 |
| BOD5 | mg/L | 3 | | | <3 | <3 | | 5 |
| Phosphorus (Total) | mg/L | 0.01 | | 0.04 | 0.05 | 0.04 | 0.06 | 0.03 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | | 0.3 | 0.3 | | 3.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | <0.05 | <0.05 | <0.05 | <0.05 | 0.69 |
| Ammonia (N)-unionized | mg/L | 0.01 | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 5.1 | 14.2 | 5.5 | 3.8 | 27.1 |
| Phenolics | mg/L | 0.001 | | | <0.001 | <0.001 | | <0.001 |
| COD | mg/L | 5 | | | 16 | 16 | | 121 |
| Aluminum | mg/L | 0.01 | | | 0.04 | 0.04 | | 0.08 |
| Hardness (as CaCO3) | mg/L | - | | 156 | 162 | 145 | 165 | 644 |
| Aluminum (Total) | mg/L | 0.01 | | | 0.27 | 0.15 | | 0.51 |
| Barium (Total) | mg/L | 0.001 | | | 0.030 | 0.035 | | 0.161 |
| Boron (Total) | mg/L | 0.005 | | 0.028 | 0.021 | 0.010 | 0.016 | 2.24 |
| Calcium (Total) | mg/L | 0.02 | | 43.1 | 45.3 | 40.9 | 45.9 | 169 |
| Iron (Total) | mg/L | 0.005 | | 0.932 | 0.833 | 0.557 | 1.09 | 4.63 |



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Data Specialist

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Final Report

REPORT No: 23-026595 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | S1 | S2 | GS6 | GS8 | GS11 |
|-------------------|-------|----------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-026595-1 | 23-026595-2 | 23-026595-3 | 23-026595-4 | 23-026595-5 |
| | | | Date Collected | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| Magnesium (Total) | mg/L | 0.02 | - | 11.8 | 11.8 | 10.5 | 12.3 | 53.8 |
| Manganese (Total) | mg/L | 0.001 | - | 0.079 | 0.094 | 0.066 | 0.033 | 1.32 |
| Potassium (Total) | mg/L | 0.1 | - | | 1.8 | 1.8 | | 25.8 |
| Silicon (Total) | mg/L | 0.01 | - | | 6.30 | 7.03 | | 6.79 |
| Sodium (Total) | mg/L | 0.2 | - | 23.7 | 21.3 | 13.0 | 20.2 | 207 |
| Strontium (Total) | mg/L | 0.001 | - | | 0.190 | 0.165 | | 1.16 |
| Sulphur (Total) | mg/L | 0.1 | - | | 8.11 | 8.23 | | 7.46 |
| Titanium (Total) | mg/L | 0.005 | - | | 0.019 | 0.007 | | 0.031 |
| Zinc (Total) | mg/L | 0.005 | - | | <0.005 | 0.005 | | 0.007 |
| Beryllium (Total) | mg/L | 0.0001 | - | | <0.0001 | <0.0001 | | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | - | | <0.000015 | <0.000015 | | 0.000031 |
| Cobalt (Total) | mg/L | 0.0001 | - | | 0.0004 | 0.0002 | | 0.0039 |
| Copper (Total) | mg/L | 0.0001 | - | | 0.0019 | 0.0013 | | 0.0028 |
| Lead (Total) | mg/L | 0.00002 | - | | 0.00015 | 0.00009 | | 0.00030 |
| Nickel (Total) | mg/L | 0.0002 | - | | 0.0013 | 0.0007 | | 0.0130 |
| Silver (Total) | mg/L | 0.0001 | - | | <0.0001 | <0.0001 | | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | - | | <0.00005 | <0.00005 | | <0.00005 |
| Vanadium (Total) | mg/L | 0.0001 | - | | 0.0012 | 0.0008 | | 0.0064 |
| Mercury | mg/L | 0.00002 | - | | <0.00002 | <0.00002 | | <0.00002 |
| Anion Sum | meq/L | - | - | | 4.83 | 3.66 | | 22.5 |
| Cation Sum | meq/L | - | - | | 4.26 | 3.55 | | 22.8 |



Michelle Dubien
Data Specialist

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Final Report
REPORT No: 23-026595 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | S1 | S2 | GS6 | GS8 | GS11 |
|----------------------------------|----------|------|----------------|-------------|-------------|-------------|-------------|-------------|
| | | | Sample I.D. | 23-026595-1 | 23-026595-2 | 23-026595-3 | 23-026595-4 | 23-026595-5 |
| | | | Date Collected | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| | | | | - | - | - | - | - |
| % Difference | % | - | | | 6.31 | 1.49 | | 0.810 |
| Ion Ratio | - | - | | | 1.13 | 1.03 | | 0.984 |
| Sodium Adsorption Ratio | - | - | | | 0.729 | 0.469 | | 3.55 |
| TDS (Ion Sum Calc) | mg/L | 1 | | | 244 | 193 | | 1180 |
| TDS(calc.)/EC(actual) | - | - | | | 0.554 | 0.496 | | 0.604 |
| Conductivity Calc | µmho/cm | - | | | 450 | 363 | | 1950 |
| Conductivity Calc / Conductivity | - | - | | | 1.02 | 0.935 | | 1.00 |
| Langelier Index(25°C) | - | - | | | 0.564 | 0.0255 | | 1.75 |
| Saturation pH (25°C) | - | - | | | 7.58 | 7.73 | | 6.38 |
| pH (Client Data) | pH units | - | | 7.90 | 8.29 | 8.13 | 8.20 | 7.63 |
| Temperature (Client Data) | °C | - | | 13.0 | 13.5 | 15.0 | 13.3 | 14.6 |



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Data Specialist**

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Final Report

REPORT No: 23-026595 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS12 | GS15 | GS20 | GS21 | GS22 |
|-----------------------------|-------|-------|----------------|-------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-026595-6 | 23-026595-7 | 23-026595-8 | 23-026595-9 | 23-026595-10 |
| | | | Date Collected | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| | | | | - | - | - | - | - |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | | 276 | 270 | 118 | 123 | 188 |
| TDS (Calc. from Cond.) | mg/L | 3 | | 460 | 453 | 211 | 198 | 484 |
| Chloride | mg/L | 0.5 | | 108 | 109 | 39.5 | 36.4 | 180 |
| Nitrate (N) | mg/L | 0.05 | | | 0.09 | 3.32 | | 0.09 |
| Nitrite (N) | mg/L | 0.05 | | | <0.05 | <0.05 | | <0.05 |
| Sulphate | mg/L | 1 | | | 32 | 28 | | 11 |
| BOD5 | mg/L | 3 | | | 3 | <3 | | <3 |
| Phosphorus (Total) | mg/L | 0.01 | | 0.04 | 0.04 | 0.20 | 0.18 | 0.09 |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | | | 1.9 | 1.0 | | 0.5 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | | 0.15 | 0.08 | 0.07 | 0.09 | <0.05 |
| Ammonia (N)-unionized | mg/L | 0.01 | | 0.02 | 0.01 | <0.01 | <0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | | 2.4 | 14.6 | 5.2 | 6.4 | 3.2 |
| Phenolics | mg/L | 0.001 | | | 0.003 | 0.002 | | 0.006 |
| COD | mg/L | 5 | | | 68 | 27 | | 27 |
| Aluminum | mg/L | 0.01 | | | 0.03 | 0.06 | | 0.05 |
| Hardness (as CaCO3) | mg/L | - | | 227 | 217 | 143 | 128 | 197 |
| Aluminum (Total) | mg/L | 0.01 | | | 0.02 | 3.31 | | 0.49 |
| Barium (Total) | mg/L | 0.001 | | | 0.031 | 0.061 | | 0.035 |
| Boron (Total) | mg/L | 0.005 | | 0.893 | 0.877 | 0.090 | 0.059 | 0.010 |
| Calcium (Total) | mg/L | 0.02 | | 40.1 | 36.8 | 33.5 | 30.0 | 57.0 |
| Iron (Total) | mg/L | 0.005 | | 0.029 | 0.021 | 4.59 | 5.05 | 0.813 |



Michelle Dubien
Data Specialist

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Final Report

REPORT No: 23-026595 - Rev. 0

| Parameter | Units | R.L. | Client I.D. | GS12 | GS15 | GS20 | GS21 | GS22 |
|-------------------|-------|----------|----------------|-------------|-------------|-------------|-------------|--------------|
| | | | Sample I.D. | 23-026595-6 | 23-026595-7 | 23-026595-8 | 23-026595-9 | 23-026595-10 |
| | | | Date Collected | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| | | | | - | - | - | - | - |
| Magnesium (Total) | mg/L | 0.02 | | 30.9 | 30.4 | 14.3 | 13.0 | 13.2 |
| Manganese (Total) | mg/L | 0.001 | | 0.070 | 0.059 | 0.117 | 0.199 | 0.243 |
| Potassium (Total) | mg/L | 0.1 | | | 15.9 | 5.3 | | 3.7 |
| Silicon (Total) | mg/L | 0.01 | | | 0.90 | 10.7 | | 5.93 |
| Sodium (Total) | mg/L | 0.2 | | 91.6 | 90.4 | 31.0 | 26.8 | 88.7 |
| Strontium (Total) | mg/L | 0.001 | | | 0.361 | 0.170 | | 0.194 |
| Sulphur (Total) | mg/L | 0.1 | | | 11.1 | 10.0 | | 4.44 |
| Titanium (Total) | mg/L | 0.005 | | | <0.005 | 0.224 | | 0.032 |
| Zinc (Total) | mg/L | 0.005 | | | <0.005 | 0.023 | | 0.007 |
| Beryllium (Total) | mg/L | 0.0001 | | | <0.0001 | 0.0001 | | <0.0001 |
| Cadmium (Total) | mg/L | 0.000015 | | | <0.000015 | 0.000046 | | <0.000015 |
| Cobalt (Total) | mg/L | 0.0001 | | | 0.0002 | 0.0022 | | 0.0005 |
| Copper (Total) | mg/L | 0.0001 | | | 0.0005 | 0.0073 | | 0.0028 |
| Lead (Total) | mg/L | 0.00002 | | | 0.00003 | 0.00116 | | 0.00021 |
| Nickel (Total) | mg/L | 0.0002 | | | 0.0036 | 0.0072 | | 0.0017 |
| Silver (Total) | mg/L | 0.0001 | | | <0.0001 | <0.0001 | | <0.0001 |
| Thallium (Total) | mg/L | 0.00005 | | | <0.00005 | <0.00005 | | <0.00005 |
| Vanadium (Total) | mg/L | 0.0001 | | | 0.0007 | 0.0070 | | 0.0016 |
| Mercury | mg/L | 0.00002 | | | <0.00002 | <0.00002 | | <0.00002 |
| Anion Sum | meq/L | - | | | 9.14 | 4.30 | | 9.09 |
| Cation Sum | meq/L | - | | | 8.69 | 4.59 | | 7.94 |



Michelle Dubien
Data Specialist

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Final Report
REPORT No: 23-026595 - Rev. 0

| Parameter | Client I.D. | | GS12 | GS15 | GS20 | GS21 | GS22 |
|----------------------------------|-------------|----------------|-------------|-------------|-------------|-------------|--------------|
| | Sample I.D. | Date Collected | 23-026595-6 | 23-026595-7 | 23-026595-8 | 23-026595-9 | 23-026595-10 |
| | Units | R.L. | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 | 2023-09-29 |
| % Difference | % | - | - | 2.53 | 3.24 | - | 6.74 |
| Ion Ratio | - | - | - | 1.05 | 0.937 | - | 1.14 |
| Sodium Adsorption Ratio | - | - | - | 2.67 | 1.13 | - | 2.75 |
| TDS (Ion Sum Calc) | mg/L | 1 | - | 477 | 242 | - | 469 |
| TDS(calc.)/EC(actual) | - | - | - | 0.556 | 0.592 | - | 0.513 |
| Conductivity Calc | µmho/cm | - | - | 867 | 440 | - | 887 |
| Conductivity Calc / Conductivity | - | - | - | 1.01 | 1.08 | - | 0.972 |
| Langelier Index(25°C) | - | - | - | 1.00 | -0.165 | - | 0.587 |
| Saturation pH (25°C) | - | - | - | 7.47 | 7.84 | - | 7.43 |
| pH (Client Data) | pH units | - | 8.52 | 8.74 | 6.90 | 7.54 | 7.70 |
| Temperature (Client Data) | °C | - | 19.8 | 19.6 | 12.3 | 12.0 | 13.2 |



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Data Specialist

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| Parameter | Units | R.L. | Client I.D. |
|-----------------------------|----------|-------|----------------|
| | | | Dup#1 |
| | | | Sample I.D. |
| | | | 23-026595-11 |
| | | | Date Collected |
| | | | 2023-09-29 |
| Parameter | Units | R.L. | |
| Alkalinity(CaCO3) to pH4.5 | mg/L | 5 | 140 |
| TDS (Calc. from Cond.) | mg/L | 3 | 213 |
| Chloride | mg/L | 0.5 | 43.4 |
| Phosphorus (Total) | mg/L | 0.01 | 0.04 |
| Ammonia (N)-Total (NH3+NH4) | mg/L | 0.05 | <0.05 |
| Ammonia (N)-unionized | mg/L | 0.01 | <0.01 |
| Dissolved Organic Carbon | mg/L | 0.2 | 7.0 |
| Hardness (as CaCO3) | mg/L | - | 159 |
| Boron (Total) | mg/L | 0.005 | 0.008 |
| Calcium (Total) | mg/L | 0.02 | 43.9 |
| Iron (Total) | mg/L | 0.005 | 1.01 |
| Magnesium (Total) | mg/L | 0.02 | 12.1 |
| Manganese (Total) | mg/L | 0.001 | 0.080 |
| Sodium (Total) | mg/L | 0.2 | 24.3 |
| pH (Client Data) | pH units | - | 7.90 |
| Temperature (Client Data) | °C | - | 13.0 |



Michelle Dubien
Data Specialist

GENERAL SAMPLE SUBMISSION FORM



SAMPLES SUBMITTED TO:

- Kingston
- Ottawa
- Richmond Hill
- Barrie
- Windsor

TESTING REQUIREMENTS

- O'Reg 153/04 Table (1 - 9)
- O'Reg 406/19 Table (1 - 9.1)
- RPI
- Coarse
- MISA
- Other:
- Record of Site
- SPLP Table (1-9.1)
- ICC
- Medium/Fine
- PWQO
- Agricultural
- O'Reg 558 TCLP
- Landfill Monitoring

REPORT NUMBER (Lab Use)

23/09/29
23-026595

Are any samples to be submitted intended for Human Consumption under any Drinking Water Regulations?

Yes No (If yes, submit all Drinking Water Samples on a Drinking Water Chain of Custody)

Organization: JP2G Consultants Inc
 Contact: Genevieve Marcoux
 Tel: 647-884-7274
 Email: genevieve.marcoux@jp2g.com

Address: 1150 Morrison drive Suite 410
 Quote #: L22-clarence rockland
 P.O. #: Q2988

Invoicing Address (if different):
 Project Name or #: 17-6021 G1
 Additional Info: Clarence WPS

ANALYSES REQUESTED

| | | |
|-------------------------------------|--------------|-----------|
| <input checked="" type="checkbox"/> | Routine | (item #5) |
| <input checked="" type="checkbox"/> | Surveillance | (item #6) |

TURNAROUND SERVICE

REQUESTED (see back page)

*Must be arranged in advance

| | | |
|-------------------------------------|----------------|----------------|
| <input type="checkbox"/> | Platinum* | 200% Surcharge |
| <input type="checkbox"/> | Gold* | 100% Surcharge |
| <input type="checkbox"/> | Silver | 50% Surcharge |
| <input type="checkbox"/> | Bronze | 25% Surcharge |
| <input checked="" type="checkbox"/> | Standard | 5-7 days |
| <input type="checkbox"/> | Specific Date: | |

Sample Matrix Legend: WW=Waste Water, SW=Surface Water, GW=Groundwater, LS=Liquid Sludge, SS=Solid Sludge, S=Soil, Sed=Sediment, PC=Paint Chips, F=Filter, Oil=Oil

| Lab No. | Sample Source and/or Sample Identification | S.P.L. (Watertrax) | Sample Matrix * | Date Collected (yy-mm-dd) | Time Collected | Indicate Test For Each Sample By Using A Check Mark In The Box Provided | | | | | | | | | | X | Field | | # Bottles/ Sample | Field Filtered Y/N | |
|---------|--|--------------------|-----------------|---------------------------|----------------|---|-------|--|--|--|--|--|--|--|--|---|-------|------|-------------------|--------------------|---|
| | | | | | | pH | Temp. | | | | | | | | | | | | | | |
| 1 | S1 | | SW | 23-09-29 | 11:45am | X | | | | | | | | | | | | 7.90 | 13.0 | 4 | Y |
| 2 | S2 | | " | " | 1:00pm | | X | | | | | | | | | | | 8.29 | 13.5 | 8 | Y |
| 3 | GS6 | | " | " | 3:00pm | | X | | | | | | | | | | | 8.13 | 15.0 | 8 | Y |
| 4 | GS8 | | " | " | 12:30pm | X | | | | | | | | | | | | 8.20 | 13.3 | 4 | Y |
| 5 | GS11 | | " | " | 2:15pm | | X | | | | | | | | | | | 7.63 | 14.6 | 8 | Y |
| 6 | GS12 | | " | " | 2:00pm | X | | | | | | | | | | | | 8.52 | 19.8 | 4 | Y |
| 7 | GS15 | | " | " | 1:30pm | | X | | | | | | | | | | | 8.74 | 19.6 | 8 | Y |
| 8 | GS20 | | " | " | 10:00am | | X | | | | | | | | | | | 6.90 | 12.3 | 8 | Y |
| 9 | GS21 | | " | " | 10:30am | X | | | | | | | | | | | | 7.54 | 12.0 | 4 | Y |
| 10 | GS22 | | " | " | 11:15pm | | X | | | | | | | | | | | 7.70 | 13.2 | 8 | Y |
| 11 | Dup#1 | | " | " | | | X | | | | | | | | | | | 7.90 | 13.0 | 4 | Y |

| SAMPLE SUBMISSION INFORMATION | | SHIPPING INFORMATION | | REPORTING / INVOICING | | SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY) | | | |
|-------------------------------|-----------------------|---|----------------------------------|--|--|--|--|--|--|
| Print: Britany Holland | Submitted by: " | Courier (Client account) <input type="checkbox"/> | Invoice <input type="checkbox"/> | Report by Fax <input type="checkbox"/> | Received By (print): 23-09-29 | Signature: 17:00 | | | |
| Sign: Britany Holland | Date: 23-09-29 | Courier (Caduceon account) <input type="checkbox"/> | # of Pieces | Report by Email <input checked="" type="checkbox"/> | Date Received (yy-mm-dd): Jessica C | Time Received: JC | | | |
| | Date (yy-mm-dd)/Time: | Drop Off <input checked="" type="checkbox"/> | | Invoice by Email <input checked="" type="checkbox"/> | Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| | Date (yy-mm-dd)/Time: | Caduceon (Pick-up) <input type="checkbox"/> | | Invoice by Mail <input type="checkbox"/> | Sample Temperature °C: 14.2 | Labeled by: | | | |

Comments: *lowest detection limits* 1,4,6,9,11 -> R, NP, M, DOC x 5
 2,3,5,7,8,10 -> pet, R, NP, 2M, Hg, DOC, phenol x 6

APPENDIX G

2023 Monitoring Wells Observations

G-1: Monitoring Wells Details

G-2: Groundwater Levels

G-1 Monitoring Well Details
2023 Environmental Monitoring Program for the Clarence-Rockland Waste Disposal Site

| Well ID | Main Screened Unit | Top of Casing Elevation (mASL) | Well Depth (m Top of pipe) | Bottom of Well (mASL) | Depth to Top of Screen (m) | Length of Screened Interval (m) | Top of Screen (mASL) | 2023 Notes |
|---------|--------------------|--------------------------------|----------------------------|-----------------------|----------------------------|---------------------------------|----------------------|--|
| P1-91 | Sandy material | 55.27 | 3.53 | 51.74 | 2.01 | 1.52 | 53.26 | |
| P2-90 | Sandy material | 61.92 | 5.55 | 56.37 | 4.03 | 1.52 | 57.89 | New lock added |
| P3-90 | Sandy material | Decomissioned | Decomissioned | -- | -- | -- | -- | |
| P4-90 | Sandy material | 58.19 | 3.92 | 54.27 | 2.40 | 1.52 | 55.79 | New lock added, sign needed |
| P5A-91 | Sandy material | 59.35 | 5.69 | 53.66 | 4.17 | 1.52 | 55.18 | Needs new 1.25in cap |
| P5B-91 | Sandy material | 58.90 | 3.41 | 55.49 | 2.65 | 0.76 | 56.25 | |
| P6-91 | Sandy material | 55.67 | 3.58 | 52.09 | 2.06 | 1.52 | 53.61 | Lock added |
| P7-91 | Sandy material | 58.24 | 3.68 | 54.56 | 2.16 | 1.52 | 56.08 | Lock added, sign needed |
| G8A-92 | Silty clay | 60.09 | 12.86 | 47.23 | 11.34 | 1.52 | 48.75 | Tubing & valve replaced, large tree blocking access in August 2023 |
| G8B-92 | Silty clay | 60.09 | 7.44 | 52.65 | 5.92 | 1.52 | 54.17 | Sign needed, large tree blocking access in August 2023 |
| G8C-92 | Sandy material | 60.09 | 3.58 | 56.51 | 2.06 | 1.52 | 58.03 | Large tree blocking access in August 2023 |
| G9A-92 | Silty clay | 56.85 | 5.52 | 51.33 | 4.00 | 1.52 | 52.85 | Pipe length to be adjusted |
| G9B-92 | Silty clay | 56.84 | 1.14 | 55.70 | -0.38 | 1.52 | 57.22 | Cap needed |
| G9C-92 | Sandy material | 56.56 | 2.97 | 53.59 | 1.45 | 1.52 | 55.11 | Cap needed |
| G10S-92 | -- | Decomissioned | Decomissioned | -- | -- | -- | -- | |
| G10D-92 | -- | Decomissioned | Decomissioned | -- | -- | -- | -- | |
| G11-92 | -- | Decomissioned | Decomissioned | -- | -- | -- | -- | |
| G12-92 | Sand & Silty clay | 55.05 | 3.10 | 51.95 | 1.58 | 1.52 | 53.47 | |
| G13-92 | Silty clay | 55.13 | 3.12 | 52.01 | 1.60 | 1.52 | 53.53 | Casing needs to be adujsed, new lock needed |
| G14-92 | Silty clay | Decomissioned | 6.07 | -- | -- | 1.52 | -- | |
| G15-92 | Sandy material | 67.68 | 12.84 | 54.84 | 11.32 | 1.52 | 56.36 | |
| G17-92 | Silty clay | 54.97 | 2.94 | 52.03 | 1.42 | 1.52 | 53.55 | |
| G18-92 | Sandy material | 56.29 | 2.71 | 53.58 | 1.19 | 1.52 | 55.10 | |
| G19-92 | Sandy material | Destroyed | Destroyed | -- | -- | 1.52 | -- | |
| G20-92 | Sandy material | 60.61 | 2.42 | 58.19 | 0.90 | 1.52 | 59.71 | |
| G21-94 | Sandy material | 56.22 | 2.52 | 53.70 | 1.61 | 0.91 | 54.61 | |
| G23-94 | Sandy material | 61.86 | 5.60 | 56.26 | 4.08 | 1.52 | 57.78 | Sign needed |
| G24-94 | Sandy material | Destroyed | Destroyed | -- | -- | -- | -- | |
| G25-94 | Sandy material | 62.18 | 6.03 | 56.15 | 4.51 | 1.52 | 57.67 | |
| G26-94 | Sandy material | 59.94 | 3.38 | 56.56 | 1.86 | 1.52 | 58.08 | |
| G27-97 | Sandy material | 54.71 | 1.81 | 52.90 | 1.05 | 0.76 | 53.66 | Needs lock |
| G28-97 | Sandy material | 54.72 | 2.15 | 52.57 | 1.39 | 0.76 | 53.33 | Lock needed |
| G29-97 | Sandy material | 61.80 | 6.61 | 55.19 | 5.09 | 1.52 | 56.71 | New lock added, sign needed |
| G30-97 | Silty clay | 54.37 | 13.51 | 40.86 | 11.99 | 1.52 | 42.38 | Sign needed |
| G31A-98 | Bedrock | 54.51 | 17.50 | 37.01 | 15.98 | 1.52 | 38.53 | |
| G31B-98 | Till | 54.53 | 21.05 | 33.48 | 19.53 | 1.52 | 35.00 | Fallen tree, sign needed |
| G32A-98 | Bedrock | 61.52 | 28.66 | 32.86 | 27.14 | 1.52 | 34.38 | Sign needed |
| G32B-98 | Till | 61.53 | 25.81 | 35.72 | 24.29 | 1.52 | 37.24 | Sign needed |
| G33A-98 | Bedrock | 54.49 | 22.69 | 31.80 | 21.17 | 1.52 | 33.32 | Lock needed |
| G33B-98 | Till | 54.56 | 18.75 | 35.81 | 17.23 | 1.52 | 37.33 | |
| G36-01 | Sandy material | 60.04 | 4.31 | 55.73 | 2.79 | 1.52 | 57.25 | |
| G37-01 | Sandy material | 61.47 | 6.12 | 55.35 | 4.60 | 1.52 | 56.87 | |
| G38-03 | Sandy material | 59.76 | 3.61 | 56.15 | 2.09 | 1.52 | 57.67 | Sign needed |
| G39-07 | Sandy material | 50.69 | 2.04 | 48.65 | 0.83 | 1.21 | 49.86 | Sign needed, pipe length needs to be adjusted, new lock needed |
| G40-07 | Sandy material | 50.81 | 2.43 | 48.38 | 1.22 | 1.21 | 49.59 | |
| G41-10 | Peat | Destroyed | Destroyed | -- | -- | -- | -- | |
| G42-10 | Peat | 48.63 | 3.08 | 45.55 | 1.56 | 1.52 | 47.07 | |
| G43-11 | Silty clay | 48.60 | 3.98 | 44.62 | 2.46 | 1.52 | 46.14 | |

G-2 Water Levels
2023 Environmental Monitoring Program for the
Clarence-Rockland Waste Disposal Site

| Well ID | Top of Casing Elevation (mASL) Pre Nov 2021 | Top of Casing Elevation (mASL) Post Nov 2021 | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | |
|-------------|--|---|---|----------------|---------------------------------|----------------|---|----------------|---------------------------------|----------------|
| | | | 16-Jun-16 | 22-Aug-16 | 16-Jun-16 | 22-Aug-16 | 1-May-17 | 20-Sep-17 | 1-May-17 | 20-Sep-17 |
| P1-91 | 55.15 | 55.27 | 1.51 | 1.43 | 53.64 | 53.72 | 1.23 | 1.44 | 53.92 | 53.71 |
| P2-90 | 61.22 | 61.92 | 4.43 | 4.58 | 56.79 | 56.64 | 3.49 | 4.41 | 57.73 | 56.81 |
| P3-90 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| P4-90 | 60.35 | 58.19 | 2.76 | 2.97 | 57.59 | 57.38 | 1.32 | 2.83 | 59.03 | 57.52 |
| P5A-91 | 59.28 | 59.35 | 3.07 | 3.35 | 56.21 | 55.93 | 2.03 | 3.15 | 57.25 | 56.13 |
| P5B-91 | 58.61 | 58.90 | 2.37 | 2.73 | 56.24 | 55.88 | 1.41 | 2.54 | 57.20 | 56.07 |
| P6-91 | 55.67 | 55.67 | 1.75 | 1.67 | 53.92 | 54.00 | 1.25 | 1.73 | 54.42 | 53.94 |
| P7-91 | 58.24 | 58.24 | 2.56 | 2.57 | 55.68 | 55.67 | 2.46 | 2.57 | 55.78 | 55.67 |
| G8A-92 | 59.99 | 60.09 | 4.56 | 4.69 | 55.43 | 55.30 | 4.36 | 4.53 | 55.63 | 55.46 |
| G8B-92 | 59.98 | 60.09 | 3.18 | 3.35 | 56.80 | 56.63 | 0.81 | 3.01 | 59.17 | 56.97 |
| G8C-92 | 59.99 | 60.09 | 2.33 | 2.53 | 57.66 | 57.46 | | 2.39 | 59.99 | 57.60 |
| G9A-92 | 56.85 | 56.85 | 1.92 | 2.27 | 54.93 | 54.58 | 1.79 | 0.76 | 55.06 | 56.09 |
| G9B-92 | 56.84 | 56.84 | 0.41 | 0.45 | 56.43 | 56.39 | 0.52 | 1.97 | 56.32 | 54.87 |
| G9C-92 | 56.56 | 56.56 | 2.27 | 2.21 | 54.29 | 54.35 | 1.39 | 2.26 | 55.17 | 54.30 |
| G10S-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G10D-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G11-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G12-92 | 54.83 | 55.05 | 2.37 | Dry | 52.46 | Dry | 1.61 | 2.24 | 53.22 | 52.59 |
| G13-92 | 54.77 | 55.13 | 2.10 | Dry | 52.67 | Dry | 1.20 | 2.10 | 53.57 | 52.67 |
| G14-92 | 60.28 | Decommissioned | 4.78 | 4.90 | 55.50 | 55.38 | 4.12 | 4.73 | 56.16 | 55.55 |
| G15-92 | 57.38 | 67.68 | 6.13 | 7.98 | 51.25 | 49.40 | 3.70 | 8.18 | 53.68 | 49.20 |
| G17-92 | 54.57 | 54.97 | 2.72 | Dry | 51.85 | Dry | 0.99 | 2.11 | 53.58 | 52.46 |
| G18-92 | 56.28 | 56.29 | 1.98 | 1.99 | 54.30 | 54.29 | 1.51 | 1.95 | 54.77 | 54.33 |
| G19-92 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G20-92 | 60.50 | 60.61 | 2.16 | Dry | 58.34 | Dry | 0.78 | 2.25 | 59.72 | 58.25 |
| G21-94 | 56.00 | 56.22 | 2.11 | 1.86 | 53.89 | 54.14 | 1.34 | 2.04 | 54.66 | 53.96 |
| G23-94 | 61.86 | 61.86 | 4.90 | 5.05 | 56.96 | 56.81 | 4.39 | 4.93 | 57.47 | 56.93 |
| G24-94 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G25-94 | 62.18 | 62.18 | 4.68 | 4.90 | 57.50 | 57.28 | 3.69 | 4.73 | 58.49 | 57.45 |
| G26-94 | 59.82 | 59.94 | 1.96 | 2.30 | 57.86 | 57.52 | 0.70 | 2.12 | 59.12 | 57.70 |
| G27-97 | 54.52 | 54.71 | 1.13 | 1.01 | 53.39 | 53.51 | 0.65 | 1.10 | 53.87 | 53.42 |
| G28-97 | 54.46 | 54.72 | 1.54 | Dry | 52.92 | Dry | 0.74 | 1.46 | 53.72 | 53.00 |
| G29-97 | 61.80 | 61.80 | 4.82 | 4.96 | 56.98 | 56.84 | 4.26 | 4.84 | 57.54 | 56.96 |
| G30-97 | 54.18 | 54.37 | 4.38 | 4.47 | 49.80 | 49.71 | 4.31 | 4.41 | 49.87 | 49.77 |
| G31A-98 (D) | 54.12 | 54.51 | 5.02 | 5.20 | 49.10 | 48.92 | 4.69 | 5.03 | 49.43 | 49.09 |
| G31B-98 (S) | 54.15 | 54.53 | 4.96 | 5.13 | 49.19 | 49.02 | 4.64 | 5.07 | 49.51 | 49.08 |
| G32A-98 | 61.52 | 61.52 | 5.38 | 5.63 | 56.14 | 55.89 | 5.04 | 5.38 | 56.48 | 56.14 |
| G32B-98 | 61.53 | 61.53 | 5.39 | 5.65 | 56.14 | 55.88 | 5.40 | 5.46 | 56.13 | 56.07 |
| G33A-98 (D) | 54.28 | 54.49 | 5.10 | 5.34 | 49.18 | 48.94 | 4.82 | 5.23 | 49.46 | 49.05 |
| G33B-98 (S) | 54.36 | 54.56 | 5.18 | 5.42 | 49.18 | 48.94 | 4.91 | 5.30 | 49.45 | 49.06 |
| G36-01 | 59.83 | 60.04 | 1.75 | 1.95 | 58.08 | 57.88 | 0.79 | 1.74 | 59.04 | 58.09 |
| G37-01 | 61.36 | 61.47 | 2.84 | 3.16 | 58.52 | 58.20 | 1.82 | 2.91 | 59.54 | 58.45 |
| G38-03 | 59.66 | 59.76 | 1.85 | 2.08 | 57.81 | 57.58 | 0.68 | 1.91 | 58.98 | 57.75 |
| G39-07 | 50.66 | 50.69 | 1.29 | 1.46 | 49.37 | 49.20 | 1.82 | 1.37 | 48.84 | 49.29 |
| G40-07 | 50.55 | 50.81 | 1.49 | 1.55 | 49.06 | 49.00 | 1.32 | 1.46 | 49.23 | 49.09 |
| G41-10 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G42-10 | 48.55 | 48.63 | 1.46 | 1.43 | 47.09 | 47.12 | 0.88 | 1.47 | 47.75 | 47.16 |
| G43-11 | 48.57 | 48.60 | 1.62 | 1.70 | 46.95 | 46.87 | 1.05 | 1.47 | 47.52 | 47.10 |

mBTOC = metres below top of casing
mASL = metres above sea level
-- = not measured
Surveyed in Nov 2021
Top of casing elevations cut in 2018
G13-92 cut 0.255m
G14-92 cut 0.04m
G39-07 cut 0.14m
G43 cut 0.16m

**G-2 Water Levels
2023 Environmental Monitoring Program for the
Clarence-Rockland Waste Disposal Site**

| Well ID | Top of Casing Elevation (mASL) Pre Nov 2021 | Top of Casing Elevation (mASL) Post Nov 2021 | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | |
|-------------|---|--|--|----------------|---------------------------------|----------------|--|----------------|---------------------------------|----------------|
| | | | April 2018 | August 2018 | April 2018 | August 2018 | April 2019 | Sept 2019 | April 2019 | Sept 2019 |
| P1-91 | 55.15 | 55.27 | 1.27 | 1.44 | 53.88 | 53.71 | 1.26 | 1.48 | 53.89 | 53.67 |
| P2-90 | 61.22 | 61.92 | 3.78 | 4.55 | 57.44 | 56.67 | 3.51 | 4.70 | 57.71 | 56.52 |
| P3-90 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| P4-90 | 60.35 | 58.19 | 1.92 | 2.97 | 58.43 | 57.38 | 1.23 | 3.08 | 59.12 | 57.27 |
| P5A-91 | 59.28 | 59.35 | 2.22 | 3.27 | 57.06 | 56.01 | 2.13 | 3.46 | 57.15 | 55.82 |
| P5B-91 | 58.61 | 58.90 | 1.59 | 2.67 | 57.02 | 55.94 | 1.49 | 2.85 | 57.12 | 55.76 |
| P6-91 | 55.67 | 55.67 | 1.35 | 1.74 | 54.32 | 53.93 | 1.28 | 1.71 | 54.39 | 53.96 |
| P7-91 | 58.24 | 58.24 | 2.50 | 2.61 | 55.74 | 55.63 | 1.52 | 2.59 | 56.72 | 55.65 |
| G8A-92 | 59.99 | 60.09 | 4.22 | 4.41 | 55.77 | 55.58 | 3.90 | 3.28 | 56.09 | 56.71 |
| G8B-92 | 59.98 | 60.09 | 2.99 | 3.19 | 56.99 | 56.79 | 2.92 | 3.21 | 57.06 | 56.77 |
| G8C-92 | 59.99 | 60.09 | 1.57 | 2.52 | 58.42 | 57.47 | 0.72 | 2.64 | 59.27 | 57.35 |
| G9A-92 | 56.85 | 56.85 | 0.82 | 2.10 | 56.03 | 54.75 | 1.40 | 1.97 | 55.45 | 54.88 |
| G9B-92 | 56.84 | 56.84 | 1.56 | 2.29 | 55.28 | 54.55 | 1.49 | 2.30 | 55.35 | 54.54 |
| G9C-92 | 56.56 | 56.56 | 1.80 | 0.79 | 54.76 | 55.77 | 0.90 | 0.82 | 55.66 | 55.74 |
| G10S-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G10D-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G11-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G12-92 | 54.83 | 55.05 | 2.01 | 2.30 | 52.82 | 52.53 | 1.70 | Dry | 53.13 | -- |
| G13-92 | 54.77 | 55.13 | 1.53 | 2.06 | 53.24 | 52.71 | 0.96 | Dry | 53.81 | -- |
| G14-92 | 60.28 | Decommissioned | 4.24 | 4.78 | 56.04 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G15-92 | 57.38 | 67.68 | 6.15 | 6.12 | 51.23 | 51.26 | 4.57 | 4.87 | 52.81 | 52.51 |
| G17-92 | 54.57 | 54.97 | 1.41 | 1.93 | 53.16 | 52.64 | 1.20 | 1.70 | 53.37 | -- |
| G18-92 | 56.28 | 56.29 | 1.56 | 1.96 | 54.72 | 54.32 | 1.52 | 1.95 | 54.76 | 54.33 |
| G19-92 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G20-92 | 60.50 | 60.61 | 1.23 | Dry | 59.27 | Dry | 0.82 | Dry | 59.68 | -- |
| G21-94 | 56.00 | 56.22 | 1.73 | 2.00 | 54.27 | 54.00 | 1.52 | Dry | 54.48 | -- |
| G23-94 | 61.86 | 61.86 | 4.55 | 5.05 | 57.31 | 56.81 | 4.21 | 5.08 | 57.65 | 56.78 |
| G24-94 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G25-94 | 62.18 | 62.18 | 4.10 | 4.87 | 58.08 | 57.31 | 1.21 | 5.06 | 60.97 | 57.12 |
| G26-94 | 59.82 | 59.94 | 1.26 | 2.24 | 58.56 | 57.58 | 0.53 | 2.05 | 59.29 | 57.77 |
| G27-97 | 54.52 | 54.71 | 0.83 | 1.06 | 53.69 | 53.46 | 0.71 | 0.95 | 53.81 | 53.57 |
| G28-97 | 54.46 | 54.72 | 0.87 | 1.31 | 53.59 | 53.15 | 0.84 | Dry | 53.62 | -- |
| G29-97 | 61.80 | 61.80 | 4.47 | 4.92 | 57.33 | 56.88 | 4.23 | 5.00 | 57.57 | 56.80 |
| G30-97 | 54.18 | 54.37 | 4.29 | 4.36 | 49.89 | 49.82 | 4.63 | 4.98 | 49.55 | 49.20 |
| G31A-98 (D) | 54.12 | 54.51 | 4.82 | 4.94 | 49.30 | 49.18 | 4.58 | 5.30 | 49.54 | 48.82 |
| G31B-98 (S) | 54.15 | 54.53 | 4.85 | 4.98 | 49.30 | 49.17 | 4.57 | 2.48 | 49.58 | 51.67 |
| G32A-98 | 61.52 | 61.52 | 4.54 | 4.79 | 56.98 | 56.73 | 4.20 | 3.30 | 57.32 | 58.22 |
| G32B-98 | 61.53 | 61.53 | 4.59 | 4.62 | 56.94 | 56.91 | | 3.48 | | 58.05 |
| G33A-98 (D) | 54.28 | 54.49 | 5.00 | 5.11 | 49.28 | 49.17 | 6.80 | 5.09 | 47.48 | 49.19 |
| G33B-98 (S) | 54.36 | 54.56 | 5.06 | 5.20 | 49.30 | 49.16 | 6.70 | 5.18 | 47.66 | 49.18 |
| G36-01 | 59.83 | 60.04 | 0.95 | 1.93 | 58.88 | 57.90 | 0.69 | 2.07 | 59.14 | 57.76 |
| G37-01 | 61.36 | 61.47 | 2.09 | 3.09 | 59.27 | 58.27 | 1.92 | 3.19 | 59.44 | 58.17 |
| G38-03 | 59.66 | 59.76 | 1.10 | 2.04 | 58.56 | 57.62 | 0.35 | 2.20 | 59.31 | 57.46 |
| G39-07 | 50.66 | 50.69 | 1.35 | 1.27 | 49.31 | 49.39 | 1.26 | 1.36 | 49.40 | 49.30 |
| G40-07 | 50.55 | 50.81 | 1.31 | 1.46 | 49.24 | 49.09 | 1.32 | 1.50 | 49.23 | 49.05 |
| G41-10 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G42-10 | 48.55 | 48.63 | 1.14 | 1.52 | 47.41 | 47.03 | 0.85 | 1.44 | 47.70 | 47.11 |
| G43-11 | 48.57 | 48.60 | 1.12 | 1.70 | 47.45 | 46.87 | 1.02 | Dry | 47.55 | -- |

mBTOC = metres below top of casing

mASL = metres above sea level

-- = not measured

Surveyed in Nov 2021

Top of casing elevations cut in 2018

G13-92 cut 0.255m

G14-92 cut 0.04m

G39-07 cut 0.14m

G43 cut 0.16m

G-2 Water Levels
2023 Environmental Monitoring Program for the
Clarence-Rockland Waste Disposal Site

| Well ID | Top of Casing Elevation (mASL) Pre Nov 2021 | Top of Casing Elevation (mASL) Post Nov 2021 | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | | Water Level Below Top of Casing (mBTOC) | | Potentiometric Elevation (mASL) | |
|-------------|--|---|---|----------------|---------------------------------|----------------|---|----------------|---------------------------------|----------------|
| | | | May 2020 | Nov 2020 | May 2020 | Nov 2020 | May 2021 | August 2021 | May 2021 | August 2021 |
| P1-91 | 55.15 | 55.27 | 1.38 | 1.34 | 53.77 | 53.81 | 1.41 | 1.49 | 53.74 | 53.66 |
| P2-90 | 61.22 | 61.92 | 5.53 | 4.60 | 55.69 | 56.62 | 4.47 | 4.77 | 56.75 | 56.45 |
| P3-90 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| P4-90 | 60.35 | 58.19 | 2.59 | 3.03 | 57.76 | 57.32 | 2.85 | 3.24 | 57.50 | 57.11 |
| P5A-91 | 59.28 | 59.35 | 2.23 | 3.30 | 57.05 | 55.98 | 3.09 | - | 56.19 | - |
| P5B-91 | 58.61 | 58.90 | 2.23 | 2.68 | 56.38 | 55.93 | 2.48 | - | 56.13 | - |
| P6-91 | 55.67 | 55.67 | 1.63 | 1.63 | 54.04 | Broken | 1.63 | 1.75 | 54.04 | 53.92 |
| P7-91 | 58.24 | 58.24 | 2.60 | 2.64 | 55.64 | 55.60 | 2.66 | 2.76 | 55.58 | 55.48 |
| G8A-92 | 59.99 | 60.09 | 3.85 | 4.00 | 56.14 | 55.99 | 3.91 | 4.24 | 56.08 | 55.75 |
| G8B-92 | 59.98 | 60.09 | 2.98 | 3.17 | 57.00 | 56.81 | 3.19 | 3.30 | 56.79 | 56.68 |
| G8C-92 | 59.99 | 60.09 | 2.16 | 2.59 | 57.83 | 57.40 | 2.39 | 2.79 | 57.60 | 57.20 |
| G9A-92 | 56.85 | 56.85 | 1.91 | 2.12 | 54.94 | 54.73 | 2.20 | 2.40 | 54.65 | 54.45 |
| G9B-92 | 56.84 | 56.84 | 2.06 | 2.17 | 54.78 | 54.67 | 1.86 | 2.15 | 54.98 | 54.69 |
| G9C-92 | 56.56 | 56.56 | 0.81 | 0.81 | 55.75 | 55.75 | 0.82 | 0.80 | 55.74 | 55.76 |
| G10S-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G10D-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G11-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G12-92 | 54.83 | 55.05 | 2.42 | Dry | 52.41 | -- | 2.44 | 2.38 | 52.39 | 52.45 |
| G13-92 | 54.77 | 55.13 | 1.67 | 1.84 | 53.10 | 52.93 | 1.72 | 2.06 | 53.05 | 52.71 |
| G14-92 | 60.28 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G15-92 | 57.38 | 67.68 | 5.10 | Gas Vent | 52.28 | -- | Gas Vent | Gas Vent | Gas Vent | Gas Vent |
| G17-92 | 54.57 | 54.97 | 2.15 | 1.50 | 52.42 | 53.07 | 2.13 | 1.93 | 52.44 | 52.64 |
| G18-92 | 56.28 | 56.29 | 1.60 | 1.53 | 54.68 | 54.75 | 1.78 | 1.91 | 54.50 | 54.37 |
| G19-92 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G20-92 | 60.50 | 60.61 | 2.42 | Dry | 58.08 | -- | 2.21 | 2.42 | 58.29 | 58.08 |
| G21-94 | 56.00 | 56.22 | 1.97 | Dry | 54.03 | -- | 2.00 | 2.00 | 54.00 | 54.00 |
| G23-94 | 61.86 | 61.86 | 4.95 | 5.13 | 56.91 | 56.73 | 4.99 | 5.17 | 56.87 | 56.69 |
| G24-94 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G25-94 | 62.18 | 62.18 | 4.55 | 4.92 | 57.63 | 57.26 | 4.77 | 5.12 | 57.41 | 57.06 |
| G26-94 | 59.82 | 59.94 | 1.82 | 2.49 | 58.00 | 57.33 | 2.14 | 2.49 | 57.68 | 57.33 |
| G27-97 | 54.52 | 54.71 | 1.00 | Dry | 53.52 | -- | 0.98 | 1.05 | 53.54 | 53.47 |
| G28-97 | 54.46 | 54.72 | 1.26 | 1.68 | 53.20 | 52.78 | 1.25 | 1.35 | 53.21 | 53.11 |
| G29-97 | 61.80 | 61.80 | 5.94 | 5.04 | 55.86 | 56.76 | 4.89 | 5.08 | 56.91 | 56.72 |
| G30-97 | 54.18 | 54.37 | 1.26 | -- | 52.92 | -- | 3.24 | 4.31 | 50.94 | 49.87 |
| G31A-98 (D) | 54.12 | 54.51 | 4.73 | 4.85 | 49.39 | 49.27 | 4.63 | 4.87 | 49.49 | 49.25 |
| G31B-98 (S) | 54.15 | 54.53 | 4.73 | 4.85 | 49.42 | 49.30 | 4.65 | 4.87 | 49.50 | 49.28 |
| G32A-98 | 61.52 | 61.52 | 3.14 | 3.93 | 58.38 | 57.59 | 3.32 | 3.38 | 58.20 | 58.14 |
| G32B-98 | 61.53 | 61.53 | 3.10 | 3.42 | 58.43 | 58.11 | 3.37 | 3.45 | 58.16 | 58.08 |
| G33A-98 (D) | 54.28 | 54.49 | 4.91 | 5.01 | 49.37 | 49.27 | 4.92 | 5.02 | 49.36 | 49.26 |
| G33B-98 (S) | 54.36 | 54.56 | 4.91 | 5.08 | 49.45 | 49.28 | 5.03 | 5.11 | 49.33 | 49.25 |
| G36-01 | 59.83 | 60.04 | 1.72 | 2.15 | 58.11 | 57.68 | 1.84 | 2.16 | 57.99 | 57.67 |
| G37-01 | 61.36 | 61.47 | 2.79 | 3.30 | 58.57 | 58.06 | 2.92 | 3.29 | 58.44 | 58.07 |
| G38-03 | 59.66 | 59.76 | 1.77 | 2.25 | 57.89 | 57.41 | 1.96 | 2.30 | 57.70 | 57.36 |
| G39-07 | 50.66 | 50.69 | 1.50 | Dry | 49.16 | -- | 1.27 | 1.33 | 49.39 | 49.33 |
| G40-07 | 50.55 | 50.81 | 1.40 | Dry | 49.15 | -- | 1.34 | 1.49 | 49.21 | 49.06 |
| G41-10 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G42-10 | 48.55 | 48.63 | 1.30 | 2.55 | 47.25 | 46.00 | 1.41 | 1.55 | 47.14 | 47.00 |
| G43-11 | 48.57 | 48.60 | Broken | Broken | Broken | Broken | Broken | Broken | Broken | Broken |

mBTOC = metres below top of casing

mASL = metres above sea level

-- = not measured

Surveyed in Nov 2021

Top of casing elevations cut in 2018

G13-92 cut 0.255m

G14-92 cut 0.04m

G39-07 cut 0.14m

G43 cut 0.16m

**G-2 Water Levels
2023 Environmental Monitoring Program for the
Clarence-Rockland Waste Disposal Site**

| Well ID | Top of Casing Elevation (mASL) Pre Nov 2021 | Top of Casing Elevation (mASL) Post Nov 2021 | Water Level Below Top of Casing (mBTC) | | Potentiometric Elevation (mASL) | |
|-------------|--|---|--|----------------|---------------------------------|----------------|
| | | | May 2022 | October 2022 | May 2022 | October 2022 |
| P1-91 | 55.15 | 55.27 | 1.04 | 1.13 | 54.23 | 54.14 |
| P2-90 | 61.22 | 61.92 | Tree fallen | 4.00 | Tree fallen | 57.92 |
| P3-90 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| P4-90 | 60.35 | 58.19 | 2.71 | 3.18 | 55.48 | 55.01 |
| P5A-91 | 59.28 | 59.35 | 2.50 | 3.23 | 56.85 | 56.12 |
| P5B-91 | 58.61 | 58.90 | 2.00 | 2.79 | 56.90 | 56.11 |
| P6-91 | 55.67 | 55.67 | 1.01 | 1.38 | 54.66 | 54.29 |
| P7-91 | 58.24 | 58.24 | 1.66 | 1.71 | 56.58 | 56.53 |
| G8A-92 | 59.99 | 60.09 | 3.76 | 3.99 | 57.84 | 56.10 |
| G8B-92 | 59.98 | 60.09 | 3.11 | 3.19 | 56.33 | 56.90 |
| G8C-92 | 59.99 | 60.09 | 2.25 | 2.73 | 56.98 | 57.36 |
| G9A-92 | 56.85 | 56.85 | 1.68 | 1.91 | 54.60 | 54.94 |
| G9B-92 | 56.84 | 56.84 | 1.90 | 2.10 | 54.94 | 54.74 |
| G9C-92 | 56.56 | 56.56 | 0.85 | 0.83 | 54.88 | 55.73 |
| G10S-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G10D-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G11-92 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G12-92 | 54.83 | 55.05 | 1.97 | 2.00 | 53.08 | 53.05 |
| G13-92 | 54.77 | 55.13 | No access | 1.80 | No access | 53.33 |
| G14-92 | 60.28 | Decommissioned | Decommissioned | Decommissioned | Decommissioned | Decommissioned |
| G15-92 | 57.38 | 67.68 | Gas Vent | Gas Vent | Gas Vent | Gas Vent |
| G17-92 | 54.57 | 54.97 | 1.91 | 1.96 | 53.06 | 53.01 |
| G18-92 | 56.28 | 56.29 | 1.58 | 1.80 | 54.71 | 54.49 |
| G19-92 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G20-92 | 60.50 | 60.61 | 1.91 | Dry | 58.70 | Dry |
| G21-94 | 56.00 | 56.22 | Lock stuck | 1.93 | Lock stuck | 54.29 |
| G23-94 | 61.86 | 61.86 | 4.94 | 5.17 | 56.92 | 56.69 |
| G24-94 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G25-94 | 62.18 | 62.18 | 4.66 | 5.05 | 57.52 | 57.13 |
| G26-94 | 59.82 | 59.94 | 2.00 | 2.52 | 57.94 | 57.42 |
| G27-97 | 54.52 | 54.71 | 0.99 | 1.03 | 53.72 | 53.68 |
| G28-97 | 54.46 | 54.72 | 1.30 | 1.23 | 53.42 | 53.49 |
| G29-97 | 61.80 | 61.80 | 4.90 | 5.12 | 56.90 | 60.57 |
| G30-97 | 54.18 | 54.37 | 4.16 | 4.33 | 50.21 | 49.25 |
| G31A-98 (D) | 54.12 | 54.51 | Tree fallen | 4.94 | Tree fallen | 49.57 |
| G31B-98 (S) | 54.15 | 54.53 | Tree fallen | 4.96 | Tree fallen | 49.57 |
| G32A-98 | 61.52 | 61.52 | Tree fallen | 3.15 | Tree fallen | 58.37 |
| G32B-98 | 61.53 | 61.53 | Tree fallen | 3.18 | Tree fallen | 58.35 |
| G33A-98 (D) | 54.28 | 54.49 | No access | 4.50 | No access | 49.99 |
| G33B-98 (S) | 54.36 | 54.56 | No access | 4.90 | No access | 49.66 |
| G36-01 | 59.83 | 60.04 | 1.64 | 2.15 | 58.40 | 57.89 |
| G37-01 | 61.36 | 61.47 | 2.62 | 3.30 | 58.85 | 58.17 |
| G38-03 | 59.66 | 59.76 | 1.81 | 2.27 | 57.95 | 57.49 |
| G39-07 | 50.66 | 50.69 | 1.28 | 1.34 | 49.41 | 49.35 |
| G40-07 | 50.55 | 50.81 | 1.40 | 1.47 | 49.41 | 49.34 |
| G41-10 | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed | Destroyed |
| G42-10 | 48.55 | 48.63 | 1.20 | 1.40 | 47.43 | 47.23 |
| G43-11 | 48.57 | 48.60 | 0.95 | 1.19 | 47.65 | 47.41 |

mBTC = metres below top of casing

mASL = metres above sea level

-- = not measured

Surveyed in Nov 2021

Top of casing elevations cut in 2018

G13-92 cut 0.255m

G14-92 cut 0.04m

G39-07 cut 0.14m

G43 cut 0.16m

APPENDIX H

Groundwater Concentrations

H-1: 2023 Inorganic Data

H-2: Historical Inorganic Data (PDF Only)

H-3: VOCs Data

H-4: Scale House Data (Domestic Well)

APPENDIX H-1
2023 Inorganic Data

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169/ 03)-Health | (2) ODWQS- AO | P1-91 | P1-91 | P2-90 | P2-90 | P4-90 | P4-90 | P5B-91 | P5B-91 | P6-91 |
|----------------------------------|--------|---------------------------------|---------------------|------------|-----------|-----------|-----------|------------|-----------|------------|-----------|------------|
| | | | | 05-May-23 | 16-Aug-23 | 04-May-23 | 15-Aug-23 | 03-May-23 | 15-Aug-23 | 05-May-23 | 16-Aug-23 | 05-May-23 |
| | | | | P1-91 | P1-91 | P2-90 | P2-90 | P4-90 | P4-90 | P5B-91 | P5B-91 | P6-91 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1130 | 1350 | 104 | 98 | 103 | 157 | 694 | 1070 | 1760 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.69 | 1.74 | < 0.01 | <0.05 | 0.07 | <0.05 | 54.4 | 95.9 | 82.7 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 7 | 5 | -- | -- | 5 | <3 | 5 | 4 | 14 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 135 | 251 | -- | -- | 20 | 20 | 81 | 141 | 340 |
| Chloride | mg/l | -- | 250 | 159 | 199 | 16.5 | 12.1 | 1.2 | 7.1 | 29.2 | 53.2 | 343 |
| Conductivity | µmho/c | -- | -- | 2225 | 0.915 | 445 | -- | 222 | 0.952 | 1364 | 1880 | 3670 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.8 | 7.9 | 2.5 | 4.1 | 4.6 | 4.8 | 13.4 | 10.5 | 89.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1030 | 1120 | 49 | 40 | 102 | 158 | 395 | 613 | 1140 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | <0.40 | -- | -- | 0.09 | <0.05 | 2.08 | <0.40 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | <0.40 | -- | -- | < 0.05 | <0.05 | 0.22 | <0.40 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 4.7 | 6.2 | -- | -- | 1.1 | 0.6 | 58.7 | 95.5 | 98.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.002 | 0.006 | 0.017 | 0.018 | 0.033 | 0.011 | 0.02 | 0.003 | < 0.002 |
| Phosphorus | mg/l | -- | -- | 0.13 | 0.19 | 1.39 | 3.75 | 0.46 | 0.29 | 0.78 | 0.43 | 0.3 |
| Sulphate | mg/l | -- | 500 (3) | < 1 | 3 | -- | -- | 9 | 15 | 2 | 4 | 78 |
| Total Dissolved Solids | mg/l | -- | 500 | 1413 | 1570 | 260 | 216 | 116 | 183 | 811 | 1190 | 2466 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.13 | 0.10 | -- | -- | 0.05 | 0.03 | 0.07 | 0.08 | 0.15 |
| Barium, dissolved | mg/l | 1 | -- | 0.272 | 0.268 | -- | -- | 0.053 | 0.032 | 0.323 | 0.462 | 0.695 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 | 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.36 | 1.85 | < 0.005 | <0.005 | 0.019 | 0.042 | 1.04 | 1.51 | 4.18 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000029 | <0.000015 | -- | -- | < 0.000010 | <0.000015 | < 0.000012 | <0.000015 | < 0.000029 |
| Calcium, dissolved | mg/l | -- | -- | 276 | 287 | 12.2 | -- | 34.3 | 48.1 | 129 | 195 | 323 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.003 | -- | -- | < 0.001 | <0.001 | 0.002 | 0.003 | 0.008 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0019 | 0.0029 | -- | -- | 0.0001 | 0.0005 | 0.0028 | 0.0063 | 0.0051 |
| Copper, dissolved | mg/l | -- | 1 | 0.0013 | 0.0008 | -- | -- | 0.0047 | 0.0025 | 0.0023 | 0.0012 | 0.0014 |
| Iron, dissolved | mg/l | -- | 0.3 | 20.4 | 23.1 | 0.338 | 0.035 | 0.039 | 0.019 | 35.1 | 76.1 | 7.88 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00009 | <0.00004 | -- | -- | 0.00008 | 0.00002 | 0.00005 | 0.00004 | < 0.00009 |
| Magnesium, dissolved | mg/l | -- | -- | 83.6 | 98.6 | 4.49 | -- | 4.07 | 9.2 | 17.7 | 30.5 | 80.3 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.38 | 5.06 | 0.007 | 0.002 | 0.002 | 0.022 | 2.21 | 2.97 | 9.27 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | <0.00002 | -- | -- | < 0.00002 | <0.00002 | < 0.00002 | <0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0002 | 0.0002 | -- | -- | 0.0002 | 0.0002 | 0.0002 | 0.0004 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.0107 | -- | -- | < 0.01 | 0.0011 | < 0.01 | 0.0059 | 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 19.7 | 18.7 | -- | -- | 2.1 | 1.6 | 64 | 85.3 | 89.4 |
| Silicon, dissolved | mg/l | -- | -- | 8.58 | 9.94 | -- | -- | 2.68 | 3.18 | 6.34 | 9.97 | 8.23 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 168 | 246 | 80.8 | 77.4 | 3.8 | 4.8 | 45.4 | 82.4 | 371 |
| Strontium, dissolved | mg/l | -- | -- | 1.72 | 1.54 | -- | -- | 0.164 | 0.25 | 0.802 | 1.15 | 1.86 |
| Sulfur, dissolved | mg/l | -- | -- | 7 | 7.81 | -- | -- | 3.5 | 5.27 | 3.6 | 4.67 | 29.6 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | <0.00005 | -- | -- | < 0.00005 | <0.00005 | < 0.00005 | <0.00005 | < 0.00005 |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | <0.005 | -- | -- | < 0.005 | <0.005 | < 0.005 | <0.005 | 0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0069 | 0.007 | -- | -- | 0.0008 | 0.0008 | 0.0042 | 0.0082 | 0.0234 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | <0.005 | -- | -- | < 0.005 | <0.005 | < 0.005 | <0.005 | 0.006 |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | <0.001 | -- | -- | < 0.001 | 0.002 | < 0.001 | <0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2289 | 2198 | 634 | 367 | 280 | 297 | 1346 | 1866 | 3936 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | 14.2 | 7.0 | 11.9 | 7.0 | 13.3 | 10.2 | 15.6 | 9.2 |
| pH (Field) | - | -- | -- | 6.82 | 6.83 | 6.65 | 7.25 | 7.36 | 7.32 | 6.58 | 6.68 | 6.85 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169/ 03)-Health | (2) ODWQS- AO | P6-91 | G8A-92 | G8A-92 | G8B-92 | G8B-92 | G8C-92 | G8C-92 | G12-92 | G12-92 |
|----------------------------------|--------|---------------------------------|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|
| | | | | 16-Aug-23 | 03-May-23 | 14-Aug-23 | 03-May-23 | 14-Aug-23 | 03-May-23 | 14-Aug-23 | 04-May-23 | 15-Aug-23 |
| | | | | P6-91 | G8A-92 | G8A-92 | G8B-92 | G8B-92 | G8C-92 | G8C-92 | G12-92 | G12-92 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1590 | 599 | -- | 276 | -- | 95 | -- | 160 | 219 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 131 | 0.32 | -- | 0.09 | -- | < 0.01 | -- | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 9 | -- | -- | -- | -- | -- | -- | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 386 | -- | -- | -- | -- | -- | -- | 6 | <5 |
| Chloride | mg/l | -- | 250 | 402 | 47.2 | -- | 14.2 | -- | 0.8 | -- | 43.9 | 55.4 |
| Conductivity | µmho/c | -- | -- | 0.822 | 1216 | -- | 590 | -- | 190 | -- | 479 | 0.989 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 64.6 | 35.5 | -- | 7.4 | -- | 2.4 | -- | 1.3 | 2.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1190 | 27 | -- | 62 | -- | 93 | -- | 162 | 199 |
| Nitrate as N | mg/l | 10 | -- | <0.40 | -- | -- | -- | -- | -- | -- | < 0.05 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | <0.40 | -- | -- | -- | -- | -- | -- | < 0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 146 | -- | -- | -- | -- | -- | -- | 0.2 | 0.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.009 | 1.27 | -- | 0.282 | -- | 0.010 | -- | 0.017 | 0.011 |
| Phosphorus | mg/l | -- | -- | 0.42 | 1.34 | -- | 0.4 | -- | 2.16 | -- | 0.3 | 0.27 |
| Sulphate | mg/l | -- | 500 (3) | 6 | -- | -- | -- | -- | -- | -- | 24 | 15 |
| Total Dissolved Solids | mg/l | -- | 500 | 2550 | 734 | -- | 346 | -- | 97 | -- | 254 | 311 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.11 | -- | -- | -- | -- | -- | -- | 0.05 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | 0.419 | -- | -- | -- | -- | -- | -- | 0.023 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | 0.0001 | -- | -- | -- | -- | -- | -- | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 3.83 | 0.618 | -- | 0.280 | -- | 0.012 | -- | 0.019 | 0.036 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.000015 | -- | -- | -- | -- | -- | -- | < 0.000010 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 334 | 3.74 | -- | 11.2 | -- | 27.8 | -- | 37.8 | 45.1 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.011 | -- | -- | -- | -- | -- | -- | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0067 | -- | -- | -- | -- | -- | -- | < 0.0001 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0008 | -- | -- | -- | -- | -- | -- | 0.0012 | 0.0025 |
| Iron, dissolved | mg/l | -- | 0.3 | 8.71 | 0.332 | -- | 0.048 | -- | 0.073 | -- | 0.070 | 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00004 | -- | -- | -- | -- | -- | -- | 0.00004 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 85.6 | 4.28 | -- | 8.31 | -- | 5.70 | -- | 16.5 | 20.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 8.24 | 0.013 | -- | 0.010 | -- | 0.002 | -- | 0.052 | 0.011 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.00002 | -- | -- | -- | -- | -- | -- | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0004 | -- | -- | -- | -- | -- | -- | 0.0002 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | 0.0126 | -- | -- | -- | -- | -- | -- | < 0.01 | 0.0012 |
| Potassium, dissolved | mg/l | -- | -- | 101 | -- | -- | -- | -- | -- | -- | 1.8 | 2.9 |
| Silicon, dissolved | mg/l | -- | -- | 10.1 | -- | -- | -- | -- | -- | -- | 4.04 | 5.24 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | -- | -- | -- | -- | -- | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 398 | 312 | -- | 119 | -- | 2.9 | -- | 33.8 | 46.2 |
| Strontium, dissolved | mg/l | -- | -- | 2.02 | -- | -- | -- | -- | -- | -- | 0.124 | 0.144 |
| Sulfur, dissolved | mg/l | -- | -- | 9.77 | -- | -- | -- | -- | -- | -- | 7.1 | 4.84 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | -- | -- | -- | -- | -- | < 0.00005 | <0.00005 |
| Titanium, dissolved | mg/l | -- | -- | 0.007 | -- | -- | -- | -- | -- | -- | < 0.005 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0252 | -- | -- | -- | -- | -- | -- | 0.0002 | 0.0003 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | -- | -- | -- | -- | -- | -- | < 0.005 | 0.006 |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.003 | -- | -- | -- | -- | -- | -- | < 0.001 | <0.001 |
| Field Measurements | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3744 | 1430 | -- | 720 | -- | 430 | -- | 490 | 583 |
| Temperature (Field) | deg c | -- | 15 | 15.6 | 7.9 | -- | 6.1 | -- | 5.8 | -- | 7.2 | 14.8 |
| pH (Field) | - | -- | -- | 6.94 | 8.59 | -- | 8.13 | -- | 7.28 | -- | 7.16 | 7.05 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169/ 03)-Health | (2) ODWQS- AO | G13-92 | G13-92 | G17-92 | G17-92 | G18-92 | G18-92 | G20-92 | G20-92 | G21-94 | G21-94 |
|----------------------------------|--------|---------------------------------|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|-----------|
| | | | | 04-May-23 | 16-Aug-23 | 05-May-23 | 16-Aug-23 | 03-May-23 | 15-Aug-23 | 04-May-23 | 15-Aug-23 | 04-May-23 | 14-Aug-23 |
| | | | | G13-92 | G13-92 | G17-92 | G17-92 | G18-92 | G18-92 | G20-92 | G20-92 | G21-94 | G21-94 |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 256 | 391 | 182 | 267 | 255 | 536 | 442 | 453 | 131 | 223 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | <0.05 | < 0.01 | 0.09 | < 0.01 | 0.12 | 2.52 | <0.05 | 0.02 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | < 3 | 3 | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | 43 | 90 | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 68.1 | 112 | 81.1 | 296 | 27.4 | 66.7 | 20.0 | 12.6 | 37.0 | 177 |
| Conductivity | µmho/c | -- | -- | 740 | -- | 645 | -- | 661 | 0.987 | 1121 | -- | 385 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.9 | 7.9 | 4.2 | 2.1 | 12.1 | 14.3 | 20.9 | 19.5 | 3.5 | 1.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 324 | 473 | 241 | 574 | 292 | 618 | 555 | 544 | 35 | 78.5 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | 5.93 | <0.05 | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | < 0.05 | 0.1 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | 1.7 | 2.4 | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.003 | 0.007 | 0.031 | 0.010 | 0.002 | 0.003 | < 0.002 | 0.040 | 0.037 | 0.026 |
| Phosphorus | mg/l | -- | -- | 0.12 | 0.11 | 0.29 | 8.98 | 0.28 | 0.23 | 0.42 | 16.2 | 3.15 | 0.54 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | 50 | 154 | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 394 | -- | 340 | -- | 371 | 757 | 673 | 546 | 214 | 549 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | 0.04 | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | 0.068 | 0.119 | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.0001 | <0.0001 | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.146 | 0.224 | 0.158 | 0.253 | 0.174 | 0.445 | 0.895 | 0.703 | 0.006 | 0.011 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | 0.000078 | 0.00013 | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 80.7 | -- | 84.2 | -- | 89.4 | 191 | 180 | -- | 12.7 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | < 0.001 | <0.001 | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0005 | 0.002 | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | 0.0301 | 0.0053 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.067 | 0.035 | 0.710 | 1.67 | 0.13 | 1.41 | 0.067 | 0.040 | 0.033 | 0.045 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | 0.00005 | 0.00006 | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 29.7 | -- | 7.48 | -- | 16.7 | 34.3 | 25.5 | -- | 0.74 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.091 | 0.051 | 0.161 | 0.591 | 4.39 | 0.200 | 0.194 | 0.001 | 0.078 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | < 0.00002 | 0.00003 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0001 | 0.0003 | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.01 | 0.0115 | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 4.2 | 8.4 | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 4.44 | 6.93 | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.0001 | <0.0001 | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31.8 | 41.6 | 33 | 50.1 | 29.5 | 78.6 | 42.3 | 32.4 | 69.5 | 199 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.382 | 0.795 | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 16.5 | 48.8 | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.00005 | <0.00005 | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.005 | < 0.005 | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0004 | 0.0007 | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | < 0.005 | <0.005 | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | < 0.001 | <0.001 | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 345 | 918 | 602 | 1284 | 1400 | 1139 | 981 | 992 | Average: 353 850 | |
| Temperature (Field) | deg c | -- | 15 | 9.9 | 15.3 | 10.0 | 17.7 | 5.6 | 16.4 | 7.5 | 15.3 | Average: 7.2 16.5 | |
| pH (Field) | - | -- | -- | 7.00 | 7.13 | 7.26 | 7.06 | 7.06 | 6.81 | 6.98 | 6.95 | Average: 7.41 7.5 | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G27-97 | G27-97 | G28-97 | G28-97 | G29-97 | G29-97 |
|----------------------------------|--------|-----------------------|----------|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
| | | ODWQS/(169/03)-Health | ODWQS-AO | 03-May-23 | 15-Aug-23 | 05-May-23 | 16-Aug-23 | 05-May-23 | 14-Aug-23 | 04-May-23 | 15-Aug-23 |
| | | | | G26-94 | G26-94 | G27-97 | G27-97 | G28-97 | G28-97 | G29-97 | G29-97 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 47 | 47 | 691 | 757 | 294 | 401 | 431 | 417 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | <0.05 | 0.21 | 0.14 | 0.05 | <0.05 | 0.02 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | <3 | 4 | -- | -- | -- | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 12 | 7 | 78 | -- | -- | -- | 27 | 96 |
| Chloride | mg/l | -- | 250 | 1.0 | 2.2 | 252 | 20.9 | 54.4 | 151 | 9.9 | 5.2 |
| Conductivity | umho/c | -- | -- | 108 | 1.08 | 2091 | -- | 625 | -- | 942 | 815 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.8 | 2.7 | 8.6 | 11.1 | 37.0 | 50.8 | 12.9 | 12.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 41 | 33.7 | 850 | 784 | 129 | 280 | 494 | 399 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | <0.05 | < 0.05 | -- | -- | -- | 3.73 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | 0.10 | < 0.05 | -- | -- | -- | < 0.05 | 4.64 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.4 | 0.3 | 2.8 | -- | -- | -- | 1 | 0.7 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.022 | 0.030 | < 0.002 | 0.006 | 0.141 | 0.008 | 0.005 | 0.01 |
| Phosphorus | mg/l | -- | -- | 4.58 | 1.36 | 0.08 | 0.07 | 0.29 | 0.06 | 1.34 | 0.72 |
| Sulphate | mg/l | -- | 500 (3) | 9 | 5 | 173 | -- | -- | -- | 84 | 26 |
| Total Dissolved Solids | mg/l | -- | 500 | 57 | 46 | 1319 | 1190 | 357 | 664 | 560 | 446 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0.01 | 0.14 | -- | -- | -- | 0.09 | 0.06 |
| Barium, dissolved | mg/l | 1 | -- | 0.015 | 0.009 | 0.122 | -- | -- | -- | 0.104 | 0.061 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | -- | -- | -- | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.009 | 0.008 | 0.656 | 0.898 | 1.18 | 3.09 | 0.071 | 0.081 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000010 | 0.000021 | < 0.000029 | -- | -- | -- | 0.000165 | 0.00012 |
| Calcium, dissolved | mg/l | -- | -- | 11.3 | 9.04 | 231 | -- | 30.2 | -- | 145 | 116 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | <0.001 | 0.002 | -- | -- | -- | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0001 | 0.0007 | 0.0011 | -- | -- | -- | 0.0073 | 0.0058 |
| Copper, dissolved | mg/l | -- | 1 | 0.0015 | 0.0027 | 0.0149 | -- | -- | -- | 0.0083 | 0.0059 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.055 | 0.033 | 2.50 | 2.52 | 0.134 | 0.239 | 0.007 | <0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00005 | 0.00004 | < 0.00009 | -- | -- | -- | 0.00003 | <0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 3.21 | 2.71 | 66.4 | -- | 12.9 | -- | 32.1 | 26.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.020 | 0.188 | 1.01 | 1.01 | 0.023 | 0.056 | 4.83 | 3.71 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | <0.00002 | < 0.00002 | -- | -- | -- | < 0.00002 | 0.00004 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | 0.0006 | -- | -- | -- | 0.0003 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.0031 | 0.01 | -- | -- | -- | < 0.01 | 0.0066 |
| Potassium, dissolved | mg/l | -- | -- | 0.8 | 0.9 | 15.1 | -- | -- | -- | 1.8 | 1.9 |
| Silicon, dissolved | mg/l | -- | -- | 2.5 | 3.52 | 4.72 | -- | -- | -- | 5.37 | 4.84 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | -- | -- | -- | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 2.7 | 3.3 | 163 | 173 | 70.8 | 176 | 24.4 | 25.9 |
| Strontium, dissolved | mg/l | -- | -- | 0.126 | 0.101 | 1.26 | -- | -- | -- | 0.892 | 0.684 |
| Sulfur, dissolved | mg/l | -- | -- | 3.0 | 1.85 | 52.4 | -- | -- | -- | 28.3 | 11.9 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | <0.00005 | < 0.00005 | -- | -- | -- | < 0.00005 | <0.00005 |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | <0.005 | < 0.005 | -- | -- | -- | < 0.005 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0004 | 0.0002 | 0.0036 | -- | -- | -- | 0.0012 | 0.0011 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | <0.005 | < 0.005 | -- | -- | -- | < 0.005 | <0.005 |
| Phenolics | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | <0.001 | < 0.001 | -- | -- | -- | < 0.001 | <0.001 |
| Field Measurements | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 160 | 1139 | 1017 | 1817 | 481 | 1045 | 914 | 738 |
| Temperature (Field) | deg c | -- | 15 | 7.7 | 13.7 | 8.9 | 16.3 | 7.8 | 17.1 | 8.2 | 10.9 |
| pH (Field) | - | -- | -- | 7.23 | 6.6 | 7.29 | 7.21 | 7.42 | 7.31 | 6.77 | 6.99 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169/ 03)-Health | (2) ODWQS- AO | G31A-98 | G31A-98 | G31B-98 | G31B-98 | G32A-98 | G32A-98 | G32B-98 | G32B-98 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|
| | | | | 05-May-23 | 14-Aug-23 | 05-May-23 | 14-Aug-23 | 04-May-23 | 15-Aug-23 | 04-May-23 | 15-Aug-23 | 04-May-23 |
| | | | | G31A-98 | G31-98A | G31B-98 | G31-98B | G32A-98 | G32-98A | G32B-98 | G32-98B | G36-01 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 399 | 425 | 411 | 411 | 354 | 358 | 335 | 347 | 179 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.35 | 0.46 | 0.43 | 0.10 | 0.26 | 0.49 | 0.57 | 0.5 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | 13 | 7 | < 3 | 12 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | 38 | 51 | 453 | 110 | -- |
| Chloride | mg/l | -- | 250 | 102 | 88.0 | 97.3 | 90.5 | 61.4 | 55.2 | 53.6 | 49.3 | 7.3 |
| Conductivity | µmho/c | -- | -- | 1034 | -- | 1038 | -- | 847 | 823 | 772 | 778 | 629 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.7 | 5.6 | 4.8 | 5.5 | 3.9 | 4.4 | 4.6 | 6.1 | 18.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 9 | 11.4 | 11 | 8.81 | 24 | 4.17 | 4 | 4.97 | 315 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | 0.05 | <0.05 | 0.08 | <0.05 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | < 0.05 | 0.08 | < 0.05 | 0.06 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | 0.8 | 0.9 | < 1 | 2.3 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.621 | 0.745 | 0.763 | 0.666 | 0.773 | 0.455 | 0.706 | 0.587 | < 0.002 |
| Phosphorus | mg/l | -- | -- | 0.77 | 2.32 | 1.63 | 0.81 | 1.12 | 1.67 | 3.24 | 4.82 | 0.25 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | < 1 | <1 | < 1 | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 596 | 569 | 601 | 565 | 491 | 452 | 448 | 423 | 363 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | 0.72 | <0.01 | < 0.01 | <0.01 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | 0.091 | 0.031 | 0.062 | 0.044 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0003 | <0.0001 | < 0.0001 | <0.0001 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.979 | 0.980 | 0.962 | 0.996 | 0.792 | 0.793 | 0.726 | 0.736 | 0.082 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | 0.000018 | <0.000015 | < 0.000010 | <0.000015 | -- |
| Calcium, dissolved | mg/l | -- | -- | 1.17 | -- | 1.46 | -- | 7.58 | 0.78 | 0.83 | 0.92 | 94.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | 0.002 | <0.001 | < 0.001 | <0.001 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0012 | <0.0001 | < 0.0001 | <0.0001 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | 0.0026 | 0.0002 | 0.0029 | 0.0002 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.021 | 0.121 | 0.063 | 0.023 | 1.34 | 0.005 | 0.014 | 0.011 | 0.006 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | 0.00292 | 0.00028 | 0.00017 | 0.00027 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 1.42 | -- | 1.71 | -- | 1.33 | 0.54 | 0.58 | 0.65 | 19.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.004 | 0.007 | 0.005 | 0.004 | 0.173 | 0.002 | 0.002 | 0.001 | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | < 0.00002 | 0.00003 | < 0.00002 | <0.00002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0005 | 0.0004 | 0.0005 | 0.0004 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.01 | <0.0002 | < 0.01 | <0.0002 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 2.9 | 2.9 | 3.0 | 3.0 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 3.97 | 2.89 | 3.08 | 2.89 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 247 | 251 | 248 | 250 | 204 | 204 | 188 | 191 | 14.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.089 | 0.049 | 0.05 | 0.054 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.6 | 1.00 | 0.7 | 2.75 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.00005 | <0.00005 | < 0.00005 | <0.00005 | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.011 | <0.005 | < 0.005 | <0.005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0037 | 0.0002 | 0.0002 | 0.0002 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | < 0.005 | <0.005 | < 0.005 | <0.005 | -- |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | < 0.001 | <0.001 | < 0.001 | <0.001 | -- |
| Field Measurements | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1008 | 908 | 990 | 892 | 819 | 739 | 765 | 684 | 608 |
| Temperature (Field) | deg c | -- | 15 | 9.9 | 11.2 | 10.4 | 9.8 | 8.8 | 12.9 | 8.5 | 11.3 | 6.6 |
| pH (Field) | - | -- | -- | 9.23 | 9.48 | 9.17 | 9.48 | 9.40 | 9.66 | 7.64 | 9.53 | 7.16 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G37-01 | G37-01 | G38-03 | G38-03 | G39-07 | G39-07 | G40-07 | G40-07 |
|----------------------------------|---------|----------------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 14-Aug-23 | 04-May-23 | 15-Aug-23 | 04-May-23 | 14-Aug-23 | 05-May-23 | 14-Aug-23 | 05-May-23 | 14-Aug-23 |
| | | | | G36-01 | G37-01 | G37-01 | G38-03 | G38-03 | G39-07 | G39-07 | G40-07 | G40-07 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 193 | 58 | 102 | 264 | 370 | 300 | 277 | 170 | 319 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | < 0.01 | <0.05 | 0.18 | <0.05 | < 0.01 | 1.48 | 0.03 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | <3 | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 15 | 8 | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 7.7 | 290 | 268 | 6.6 | 6.7 | 89.5 | 96.3 | 43.8 | 96.8 |
| Conductivity | µmho/cm | -- | -- | -- | 1172 | 1350 | 599 | -- | 874 | -- | 488 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.5 | < 0.2 | 1.1 | 9.2 | 9.9 | 9.8 | 12.7 | 18.0 | 16.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 309 | 208 | 196 | 323 | 327 | 253 | 201 | 131 | 257 |
| Nitrate as N | mg/l | 10 | -- | -- | 4.67 | <0.05 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | 4.41 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.1 | 0.3 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.005 | < 0.002 | 0.006 | < 0.002 | <0.002 | 0.002 | 0.010 | 0.027 | 0.012 |
| Phosphorus | mg/l | -- | -- | 0.04 | 0.09 | 0.10 | 0.16 | 0.97 | 1.26 | 1.14 | 1.08 | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | -- | 68 | 106 | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 343 | 615 | 722 | 325 | 370 | 485 | 441 | 261 | 475 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.04 | 0.03 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.114 | 0.101 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | <0.0001 | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.079 | 0.01 | 0.008 | 0.057 | 0.061 | 0.838 | 0.896 | 0.502 | 0.779 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | 0.00011 | 0.00011 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 52.3 | 48.1 | 109 | -- | 50.9 | -- | 29.2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | 0.002 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0003 | 0.0004 | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0033 | 0.0041 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.005 | 0.007 | 0.006 | 19.7 | 20.6 | 0.689 | 1.92 | 1.57 | 4.07 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00016 | 0.00003 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 18.9 | 18.5 | 12.3 | -- | 30.5 | -- | 14.1 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.046 | 0.045 | 0.039 | 2.18 | 1.89 | 0.275 | 0.218 | 0.292 | 0.540 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | <0.00002 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | < 0.0001 | 0.0001 | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | < 0.01 | 0.0053 | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 0.8 | 1 | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 3.92 | 3.09 | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | <0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14.4 | 150 | 190 | 11.2 | 13.4 | 90.4 | 91.6 | 56.1 | 91.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.664 | 0.615 | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 21.9 | 31.5 | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | <0.00005 | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | <0.005 | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0002 | 0.0003 | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | 0.006 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.001 | <0.001 | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 573 | 1147 | 1130 | 496 | 683 | 817 | 891 | 422 | 769 |
| Temperature (Field) | deg c | -- | 15 | 14.60 | 7.1 | 12.2 | 6.9 | 15.1 | 8.6 | 18.4 | 7.7 | 16.5 |
| pH (Field) | - | -- | -- | 7.03 | 6.40 | 6.60 | 7.14 | 6.61 | 7.59 | 7.24 | 7.20 | 7.08 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | | G42-10 | | G43-11 | |
|----------------------------------|---------|----------------------|----------|-----------|-----------|------------|-----------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 04-May-23 | 15-Aug-23 | 04-May-23 | 16-Aug-23 |
| | | | | G42-10 | G42-10 | G43-11 | G43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 118 | 210 | 640 | 667 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | 0.68 | 0.66 | 1.28 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | <3 | 8 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 106 | 198 | 95 | 349 |
| Chloride | mg/l | -- | 250 | 300 | 230 | 47.7 | 43.5 |
| Conductivity | µmho/cm | -- | -- | 1240 | 0.988 | 1288 | 1270 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12.9 | 40.4 | 41.1 | 35.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 245 | 224 | 116 | 109 |
| Nitrate as N | mg/l | 10 | -- | 0.23 | <0.05 | < 0.05 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | 0.09 | < 0.05 | 0.07 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.1 | 4.6 | 3.7 | 11.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.035 | 0.067 | 2.07 | 1.37 |
| Phosphorus | mg/l | -- | -- | 0.27 | 0.37 | 2.25 | 5.13 |
| Sulphate | mg/l | -- | 500 (3) | 27 | 23 | 11 | 6 |
| Total Dissolved Solids | mg/l | -- | 500 | 641 | 630 | 783 | 776 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.25 | 0.42 | 0.02 | 0.02 |
| Barium, dissolved | mg/l | 1 | -- | 0.082 | 0.05 | 0.071 | 0.059 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.136 | 0.21 | 1.07 | 1.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000055 | 0.000049 | < 0.000012 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 53.2 | 47.1 | 21.5 | 20.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.004 | < 0.001 | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0013 | 0.0024 | 0.0006 | 0.0006 |
| Copper, dissolved | mg/l | -- | 1 | 0.0094 | 0.0064 | 0.0006 | 0.0004 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.815 | 3.66 | 0.719 | 1.20 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00035 | 0.00098 | < 0.00004 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 27.2 | 25.8 | 15.1 | 14.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.432 | 0.645 | 0.300 | 0.287 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | 0.00003 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0005 | 0.001 | 0.0034 | 0.002 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.0097 | < 0.01 | 0.0039 |
| Potassium, dissolved | mg/l | -- | -- | 2.6 | 4.3 | 9.9 | 10.3 |
| Silicon, dissolved | mg/l | -- | -- | 3.5 | 4.45 | 9 | 9.53 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | <0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 159 | 159 | 292 | 278 |
| Strontium, dissolved | mg/l | -- | -- | 0.296 | 0.246 | 0.188 | 0.17 |
| Sulfur, dissolved | mg/l | -- | -- | 9.7 | 8.98 | 8.8 | 12.5 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | <0.00005 | < 0.00005 | <0.00005 |
| Titanium, dissolved | mg/l | -- | -- | 0.012 | 0.028 | < 0.005 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.003 | 0.0089 | 0.0031 | 0.0042 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | 0.007 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | <0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1221 | 987 | 1430 | 1130 |
| Temperature (Field) | deg c | -- | 15 | 6.8 | 14.6 | 8.2 | 11.5 |
| pH (Field) | - | -- | -- | 6.82 | 6.95 | 7.93 | 7.83 |

APPENDIX H-2

Historical Inorganic Data (PDF Only)

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 09-Aug-1991 | 04-Dec-1991 | 01-May-1992 | 07-Sep-1992 | 27-Nov-1992 | 03-May-1993 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 244 | 198 | 182 | 214 | 212 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | <0.1 | 0.17 | 0.16 | -- |
| Bicarbonate | mg/l | -- | -- | -- | 297 | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 1 | 3 | <1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | 0.8 | 1.3 | 1.4 | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | <1 | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 1628 | 16 | 25 | 13 | 21 |
| Chloride | mg/l | -- | 250 | 63 | 51 | 62 | 46 | 55 | 56 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 6.9 | -- | -- | -- | 7.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | 0.06 | 0.07 | 0.06 | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 251 | 287 | 211 | 276 | 242 |
| Nitrate as N | mg/l | 10 | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 4.82 | 0.23 | 0.57 | 0.35 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | 0.23 | 0.4 | 0.19 | -- |
| Phosphate | mg/l | -- | -- | -- | 2.72 | 0.24 | 0.31 | 0.17 | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 51 | 60 | 57 | 50 | 61 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 504 | 368 | 390 | 370 | 370 | 410 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | 5.9 | 5.9 | 5.9 | 8.2 |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | <0.03 | 0.18 | <0.01 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.03 | 0.05 | 0.04 | 0.04 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.15 | 0.33 | 0.18 | 0.21 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | -- | 46 | 59 | 45 | 63 | 54 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | <0.01 | 0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | -- | <0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.06 | 22.99 | 6.45 | 10.03 | 9.82 | 8.23 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.05 | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 33 | 34 | 24 | 29 | 26 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.05 | 0.6 | 0.47 | 0.56 | 0.54 | 0.49 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.1 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.16 | <0.01 | <0.01 | <0.01 | 0.04 |
| Potassium, dissolved | mg/l | -- | -- | -- | 5 | 3 | 3 | 5 | 2 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 7.8 | 11.2 | 10.1 | 8.8 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 63 | 37 | 44 | 43 | 37 | 47 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 0.12 | 0.17 | 0.23 | 0.22 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 15 | 19 | 22 | 20 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | 0.61 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | <0.002 | <0.002 | <0.002 | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 788 | 611 | 900 | 700 | 600 | 700 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 8 | 8 | 7 | 7 |
| pH (Field) | - | -- | -- | -- | 6.55 | 6.4 | 6.5 | 6.1 | 5.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 10-Nov-1993 | 03-Jun-1994 | 09-Sep-1994 | 24-Nov-1994 | 04-Jun-1995 | 11-Sep-1995 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 162 | 209 | 226 | 220 | 250 | 230 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.17 | 0.11 | -- | 0.15 | 0.11 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 2 | 1 | -- | <1 | 2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 20 | 18 | 20 | 16 | 23 | 27 |
| Chloride | mg/l | -- | 250 | 40 | 77 | 81 | 68 | 83 | 86 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.9 | 7.9 | 8.2 | 7.1 | 8.5 | 9.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | 278 | 253 | 229 | 286 | 247 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | -- | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.54 | 0.5 | -- | 0.4 | 0.58 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | 0.37 | 0.39 | -- | 0.25 | 0.47 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | 0.55 | 0.8 | -- | 0.15 | 0.25 |
| Sulphate | mg/l | -- | 500 (3) | -- | 36 | 36 | -- | 33 | 31 |
| Total Dissolved Solids | mg/l | -- | 500 | 310 | 470 | 420 | 400 | 468 | 464 |
| Total Organic Carbon | mg/l | -- | -- | 6.9 | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | <0.03 | <0.03 | -- | 0.34 | 0.32 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.04 | 0.04 | -- | 0.05 | 0.05 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.23 | 0.21 | 0.33 | -- | 0.27 | 0.35 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.00015 | <0.00015 | -- | <0.00015 | <0.00015 |
| Calcium, dissolved | mg/l | -- | -- | 40 | 62 | 60 | -- | 65 | 56 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.02 | <0.01 | 0.02 | -- | 0.27 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.0004 | <0.0004 | -- | 0.0007 | 0.0036 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.005 | <0.005 | -- | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 5.14 | 8.44 | 8.81 | 7.91 | 11.8 | 8.99 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | -- | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 17 | 30 | 25 | -- | 30 | 26 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.36 | 0.48 | 0.49 | 0.44 | 0.57 | 0.52 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.0002 | <0.0002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 2 | 2 | -- | 3 | 4 |
| Silicon, dissolved | mg/l | -- | -- | 6.4 | 5.6 | 5.2 | -- | 7.2 | 9 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.0001 | 0.0007 | -- | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 41 | 37 | 45 | 44 | 52 | 67 |
| Strontium, dissolved | mg/l | -- | -- | <0.01 | 0.2 | 0.183 | 0.19 | 0.211 | 0.215 |
| Sulfur, dissolved | mg/l | -- | -- | 20 | 11 | 15 | -- | 13 | 12 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.005 | <0.005 | -- | <0.005 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | 0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.007 | <0.007 | -- | <0.007 | <0.007 |
| Zinc, dissolved | mg/l | -- | 5 | 0.02 | <0.01 | <0.01 | -- | <0.01 | <0.01 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.001 | <0.001 | -- | <0.001 | <0.001 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 700 | 650 | 750 | 750 | 800 | 900 |
| Temperature (Field) | deg c | -- | 15 | 6 | 8 | 11.5 | 9 | 10 | 12 |
| pH (Field) | - | -- | -- | 6.8 | 6.5 | 6.5 | 7 | 6.5 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 07-Nov-1995 | 16-Jul-1996 | 21-Nov-1996 | 10-Jun-1997 | 11-Sep-1997 | 11-Jun-1998 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 253 | 270 | 205 | 276 | 272 | 300 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.14 | 0.13 | 0.19 | 0.09 | 0.16 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | <1 | <1 | 3 | 1 | 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 28 | 27 | 29 | 37 | 31 | 34 |
| Chloride | mg/l | -- | 250 | 87 | 90 | 65 | 95 | 88 | 90 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.1 | 10.5 | 8.2 | 10.3 | 10.6 | 11 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 291 | 276 | 240 | 281 | 286 | 327 |
| Nitrate as N | mg/l | 10 | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.61 | 0.53 | 0.56 | 0.49 | 0.67 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | 0.47 | 0.4 | 0.37 | 0.4 | 0.51 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 0.41 | 1.31 | 1.09 | 0.14 | 2.26 |
| Sulphate | mg/l | -- | 500 (3) | -- | 30 | 31 | 24 | 23 | 28 |
| Total Dissolved Solids | mg/l | -- | 500 | 476 | 472 | 388 | 492 | 504 | 516 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.29 | 0.44 | 0.33 | 0.23 | 0.43 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.05 | 0.04 | 0.05 | 0.04 | 0.05 |
| Beryllium, dissolved | mg/l | -- | -- | -- | <0.01 | 0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.3 | 0.21 | 0.25 | 0.28 | 0.29 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | <0.005 | <0.005 | 0.007 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | -- | 61 | 53 | 65 | 65 | 75 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | -- | <0.005 | <0.005 | 0.014 | 0.011 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 10.7 | 8.42 | 7.38 | 8.37 | 8.67 | 11 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 30 | 26 | 29 | 30 | 34 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.65 | 0.47 | 0.44 | 0.5 | 0.49 | 0.58 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | 0.0006 | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | <0.01 | <0.03 | <0.03 | <0.03 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | 3 | 3 | 3 | 3 | 5 |
| Silicon, dissolved | mg/l | -- | -- | -- | 7.1 | 8.2 | 7.7 | 6.5 | 6.1 |
| Silver, dissolved | mg/l | -- | -- | -- | <0.01 | <0.001 | <0.004 | 0 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 53 | 61 | 48 | 53 | 65 | 70 |
| Strontium, dissolved | mg/l | -- | -- | 0.24 | 0.221 | 0.189 | 0.21 | 0.227 | 0.256 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 9 | 11 | 8 | 8 | 10 |
| Thallium, dissolved | mg/l | -- | -- | -- | 0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | -- | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.002 | <0.002 | <0.002 | <0.002 | <0.002 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 850 | 880 | 430 | 580 | 240 | 540 |
| Temperature (Field) | deg c | -- | 15 | 13 | 9 | 6 | 3.5 | 12 | 10 |
| pH (Field) | - | -- | -- | 7.2 | 7.2 | 7.1 | 6.9 | 6.3 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 19-Aug-1998 | 25-May-1999 | 31-Aug-1999 | 31-May-2000 | 18-Aug-2000 | 28-May-2001 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 252 | 332 | 329 | 301 | 310 | 311 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.06 | 0.61 | 0.16 | 0.11 | 0.07 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | 2 | 4 | 1 | <1 | 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 27 | 32 | 43 | 23 | 28 | 49 |
| Chloride | mg/l | -- | 250 | 84 | 101 | 88 | 89 | 89 | 86 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10 | 11.8 | 15.3 | 9.7 | 10.1 | 8.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 200 | 321 | 390 | 307 | 332 | 300 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.53 | 0.59 | 0.7 | 0.37 | 1.81 | 0.53 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.45 | 0.53 | 0.09 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.49 | 0.74 | 3.52 | 0.96 | 0.03 | 0.29 |
| Sulphate | mg/l | -- | 500 (3) | 33 | 18 | 19 | 20 | 24 | 15 |
| Total Dissolved Solids | mg/l | -- | 500 | 464 | 528 | 528 | 520 | 532 | 508 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.45 | <0.03 | <0.03 | 0.13 | 0.27 | <0.05 |
| Barium, dissolved | mg/l | 1 | -- | 0.09 | 0.05 | 0.06 | 0.05 | 0.05 | 0.04 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.002 | <0.002 | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | 0.28 | 0.28 | 0.32 | 0.24 | 0.25 | 0.22 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.005 | <0.005 | <0.0001 | <0.0001 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 67 | 74 | 95 | 70 | 77 | 69 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.061 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | 0.2 | 0.0004 | 0.0004 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | <0.005 | <0.005 | <0.01 | <0.001 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.35 | 9.5 | 10.6 | 8.43 | 9.28 | 8.6 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 8 | 33 | 37 | 32 | 34 | 31 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.9 | 0.55 | 0.58 | 0.52 | 0.52 | 0.52 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | <0.0002 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | <0.01 | <0.01 | 0.03 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 4 | 3 | 8 | 3 | 3 | 3 |
| Silicon, dissolved | mg/l | -- | -- | 6.1 | 7.6 | 6.5 | 7.52 | 7.52 | 8.16 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.02 | <0.001 | <0.0001 | 0.0006 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 58 | 67 | 56 | 51 | 53 | 56 |
| Strontium, dissolved | mg/l | -- | -- | 0.25 | 0.25 | 0.301 | 0.238 | 0.264 | 0.254 |
| Sulfur, dissolved | mg/l | -- | -- | 12 | 7 | 7 | 9 | 9 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.2 | <0.5 | <0.001 | <0.001 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | 0.003 | 0.001 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 800 | 740 | 550 | 800 | 855 | 300 |
| Temperature (Field) | deg c | -- | 15 | 10 | 6 | 9 | 6 | 11.9 | 9 |
| pH (Field) | - | -- | -- | 7.2 | 6.92 | 5.6 | 7.08 | 7 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 08-Aug-2001 | 03-Apr-2002 | 06-Aug-2002 | 13-May-2003 | 26-Aug-2003 | 26-May-2004 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 515 | 366 | 376 | 728 | 727 | 600 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | 0.38 | 0.12 | 0.12 | 0.08 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- ⁽²⁰⁾ | 3 | 2 | 5 | 3 | 3.4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- ⁽²⁰⁾ | 29 | 25 | 44 | 46 | 51 |
| Chloride | mg/l | -- | 250 | 103 | 91 | 97 | 132 | 135 | 126 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12.5 | 9.4 | 10.1 | 16.8 | 17.5 | 12.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 561 | 384 | 417 | 754 | 718 | 580.4 |
| Nitrate as N | mg/l | 10 | -- | -- ⁽²⁰⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 |
| Nitrite as N | mg/l | 1.0 | -- | -- ⁽²⁰⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.2 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- ⁽²⁰⁾ | 0.57 | 0.68 | 1.04 | 1.12 | 0.9 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | 0.07 | 0.13 | 0.1 | 0.008 |
| Phosphorus | mg/l | -- | -- | 0.02 | 0.49 | 0.45 | 0.41 | 0.37 | <0.05 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- ⁽²⁰⁾ | 18 | 29 | 60 | 36 | 29.5 |
| Total Dissolved Solids | mg/l | -- | 500 | 768 | 629 | 663 | 1070 | 1080 | 880 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.06 | <0.05 | 0.01 | 0.02 | 0.02 | 0.009 |
| Barium, dissolved | mg/l | 1 | -- | 0.07 | 0.04 | 0.06 | 0.09 | 0.09 | 0.098 |
| Beryllium, dissolved | mg/l | -- | -- | <0.002 | <0.002 | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.3 | 0.15 | 0.22 | 0.32 | 0.41 | 0.32 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.001 | <0.001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 142 | 86 | 96 | 170 | 169 | 138 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.001 | 0.019 | 0.006 | <0.01 | <0.01 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0002 | 0.0002 | 0.0004 | <0.002 | <0.002 | 0.0002 |
| Copper, dissolved | mg/l | -- | 1 | <0.001 | <0.001 | 0.001 | <0.01 | <0.01 | 0.0016 |
| Iron, dissolved | mg/l | -- | 0.3 | 16.4 | 5.45 | 10.9 | 20.6 | 19.6 | 14.5 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 50 | 41 | 43 | 80 | 72 | 57 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.89 | 0.55 | 0.61 | 1.02 | 0.964 | 0.846 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.006 | <0.005 | <0.005 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | -- ⁽²⁰⁾ | <0.01 | <0.005 | <0.005 | <0.005 | 0.004 |
| Potassium, dissolved | mg/l | -- | -- | 4 | 3 | 4 | 4 | 5 | 3.7 |
| Silicon, dissolved | mg/l | -- | -- | 7.09 | 7.55 | 7.86 | 7.3 | 6.6 | 7.09 |
| Silver, dissolved | mg/l | -- | -- | -- ⁽²⁰⁾ | <0.0001 | <0.0001 | <0.001 | <0.001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 70 | 65 | 62 | 85 | 93 | 75.5 |
| Strontium, dissolved | mg/l | -- | -- | 0.49 | 0.243 | 0.359 | 0.57 | 0.632 | 0.589 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | 13 |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.01 | <0.01 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | <0.001 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | <0.001 | 0.006 | 0.002 | <0.01 | <0.01 | 0.0025 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | 0.009 | <0.005 | <0.005 | 0.022 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- ⁽²⁰⁾ | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1050 | 900 | 1050 | 810 | 790 | 1350 |
| Temperature (Field) | deg c | -- | 15 | 12 | 5 | 15 | 6 | 12 | 8.2 |
| pH (Field) | - | -- | -- | 7.7 | 6 | 7.1 | 6.4 | 6.6 | 6.76 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 30-Aug-2004 | 26-May-2005 | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 | 29-May-2007 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 737 | 796 | 984 | 1190 | 1580 | 2040 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.1 | 0.23 | 0.11 | 0.1 | 0.17 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 5.2 | 5 | 10 | 241 | 1250 | 1170 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 60 | 64 | 86 | 537 | 1860 | 1540 |
| Chloride | mg/l | -- | 250 | 146 | 180 | 222 | 274 | 343 | 416 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 22.4 | 24.6 | 32 | 172 | 669 | 634 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 772.4 | 851 | 1090 | 1320 | 1780 | 2160 |
| Nitrate as N | mg/l | 10 | -- | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.2 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2.06 | 1.44 | 1.81 | 3 | 4.15 | 11.8 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.003 | 0.09 | 0.18 | 0.1 | 0.18 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.06 | 0.29 | 0.19 | 0.19 | 0.17 | 0.29 |
| Sulphate | mg/l | -- | 500 (3) | 37.1 | 16 | 13 | 2 | 4 | 3 |
| Total Dissolved Solids | mg/l | -- | 500 | 1016 | 1220 | 1500 | 1820 | 2440 | 2890 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.005 | <0.01 | <0.01 | 0.03 | <0.01 | 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.116 | 0.14 | 0.15 | 0.19 | 0.22 | 0.33 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.378 | 0.32 | 0.47 | 0.58 | 0.9 | 1.8 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 178 | 212 | 263 | 323 | 423 | 503 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | 0.007 | 0.014 | 0.008 | <0.005 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | 0.0005 | 0.0007 | 0.0009 | 0.0011 | 0.0016 |
| Copper, dissolved | mg/l | -- | 1 | <0.0005 | <0.001 | 0.001 | 0.001 | 0.001 | 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 20.1 | 25.2 | 27 | 24.4 | 44.4 | 55.4 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 79.2 | 78 | 105 | 125 | 176 | 219 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.06 | 1.03 | 1.17 | 1.37 | 2.08 | 3.56 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | <0.005 | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | 0.007 | 0.012 | 0.019 | 0.019 | 0.023 | 0.025 |
| Potassium, dissolved | mg/l | -- | -- | 4.4 | 4 | 5 | 5 | 6 | 10 |
| Silicon, dissolved | mg/l | -- | -- | 7.96 | 10.5 | 11.1 | 13.8 | 11.4 | 11.7 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 88.8 | 83 | 99 | 92 | 141 | 254 |
| Strontium, dissolved | mg/l | -- | -- | 0.781 | 0.813 | 0.638 | 1.59 | 1.93 | 3.02 |
| Sulfur, dissolved | mg/l | -- | -- | 16.4 | 5.3 | 4.3 | 0.7 | 1.3 | 1 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | 0.12 | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0037 | 0.013 | 0.031 | 0.008 | 0.027 | 0.039 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.001 | <0.001 | <0.001 | 0.089 | 0.24 | 0.373 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1610 | 1880 | 1800 | 2800 | 1910 | 2600 |
| Temperature (Field) | deg c | -- | 15 | 15 | 9 | 16.4 | 11 | 15 | 10.4 |
| pH (Field) | - | -- | -- | 6.6 | 6.8 | 6.4 | 6.4 | 6.6 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | 28-Aug-2007 | 01-May-2008 | 07-Aug-2008 | 15-Apr-2009 | 14-Aug-2009 | 31-May-2010 |
| | | | | | | | P-1-91 | 1-91 | M-2 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2300 | 2070 | 1380 | 1430 | 1270 | 1450 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | 0.07 | 0.82 | 1.4 | 1.2 | 1.2 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 1220 | 806 | 41 | 9 | 8 | 10 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 1810 | 1220 | 227 | 210 | 170 | 210 |
| Chloride | mg/l | -- | 250 | 433 | 376 | 343 | 340 | 140 | 340 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 672 | 409 | 66.5 | 62.6 | 51.9 | 73 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 2450 | 2040 | 1230 | 1500 | 1200 | 1500 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.01 | <0.01 | <0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 8.55 | 6.24 | 6.14 | 5.7 | 4.7 | 5.8 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | <0.1 | <0.1 | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.25 | < 0.010 | 0.02 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.22 | 0.15 | 0.08 | 0.13 | 0.12 | 0.11 |
| Sulphate | mg/l | -- | 500 (3) | 1 | 3 | 6 | <1 | 2 | <1 |
| Total Dissolved Solids | mg/l | -- | 500 | 3330 | 2910 | 2070 | 2050 | 1800 | 2100 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.1 | <0.01 | 0.007 | 0.007 | 0.009 |
| Barium, dissolved | mg/l | 1 | -- | 0.39 | 0.3 | 0.22 | 0.25 | 0.18 | 0.25 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.01 | <0.001 | <0.0005 | <0.0005 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 2.43 | 3.2 | 1.7 | 1.6 | 1.5 | 1.4 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 626 | 508 | 321 | 380 | 290 | 390 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.006 | <0.005 | <0.005 | <0.005 | <0.005 | 0.007 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0013 | <0.002 | 0.0014 | <0.003 (33) | 0.0008 | 0.0013 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | <0.01 | 0.001 | 0.002 | 0.001 | 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 77.7 | 58.4 | 37.7 | 44 | 31 | 28 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.01 | <0.001 | <0.0005 | <0.0005 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 216 | 187 | 104 | 130 | 110 | 130 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.64 | 3.7 | 2.1 | 3.0 | 2.2 | 2.0 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.05 | <0.005 | <0.001 | <0.001 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.033 | <0.05 | 0.026 | 0.017 (33) | 0.012 | 0.018 (33) |
| Potassium, dissolved | mg/l | -- | -- | 8 | 8 | 8 | 8.5 | 7.0 | 7.3 |
| Silicon, dissolved | mg/l | -- | -- | 12.6 | 14 | 14 | 12 | 12 | 12 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 244 | 322 | 199 | 240 | 240 | 250 |
| Strontium, dissolved | mg/l | -- | -- | 3.23 | 2.14 | 1.63 | 1.9 | 1.4 | 2.0 |
| Sulfur, dissolved | mg/l | -- | -- | 0.3 | 1 | 2 | 2.1 | 19.6 | 4.4 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.001 | <0.0001 | <0.00005 | 0.00006 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.1 | <0.01 | <0.005 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.077 | 0.07 | 0.042 | 0.016 | 0.009 | 0.013 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.1 | <0.01 | <0.005 | <0.005 | 0.009 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.527 | 0.453 | 0.013 | 0.004 | 0.003 | 0.002 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2800 | 3100 | 2200 | 2800 | 2388 | 3297 |
| Temperature (Field) | deg c | -- | 15 | 14.2 | 6 | 15 | 5 | 14.7 | 9.4 |
| pH (Field) | - | -- | -- | 7 | 6.6 | 7.1 | 6.8 | 6.53 | 6.53 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|-----------------|-------------|-------------|-------------|------------------|------------------|-------------|
| | | | | 11-Aug-2010 | 29-Apr-2011 | 25-Aug-2011 | 04-Jun-2012 (24) | 29-Aug-2012 (25) | 23-Apr-2013 |
| | | | | R-3 | S-1 | P1-91 | 1-91 | 1-91 | SV-2 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1370 | 1440 | 1260 | 210 | 1600 | 1500 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.0 | 1.1 | 0.93 | 0.99 | 1.2 | 1.4 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 9 | 14 | 10 | 11 | 12 | 11 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 200 | 210 | 180 | 210 | 220 | 210 |
| Chloride | mg/l | -- | 250 | 320 | 310 | 240 | 250 | 330 | 340 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 68.9 | 66.3 | 59.5 | 80 | 77 | 74 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1300 | 1500 | 1200 | 1400 | 1500 | 1800 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.10 | <0.10 | <0.10 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | <0.01 | <0.01 | <0.010 | <0.010 | <0.010 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5.7 | 5.6 | 5 | 5.4 | 5.0 | 6.0 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | <0.1 | <0.1 | <0.10 | <0.10 | <0.10 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | < 0.010 | < 0.01 | < 0.01 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.10 | 0.5 | 0.17 | 0.22 | 0.22 | 0.34 |
| Sulphate | mg/l | -- | 500 (3) | <1 | <1 | <1 | <1 | <1 | <1 |
| Total Dissolved Solids | mg/l | -- | 500 | 2020 | 1940 | 1980 | 2070 | 2370 | 2190 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.005 | 0.009 | 0.007 | 0.0096 | 0.0054 | 0.0062 |
| Barium, dissolved | mg/l | 1 | -- | 0.22 | 0.25 | 0.19 | 0.25 | 0.28 | 0.31 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Boron, dissolved | mg/l | 5 | -- | 1.8 | 1.4 | 1.7 | 1.7 | 3.3 | 1.8 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Calcium, dissolved | mg/l | -- | -- | 330 | 390 | 300 | 340 | 390 | 470 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.005 | <0.0050 | 0.0088 | 0.0090 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0012 | 0.0016 | 0.0013 | 0.0023 | 0.0022 (24) | 0.0021 (24) |
| Copper, dissolved | mg/l | -- | 1 | <0.001 | <0.001 | 0.001 | 0.0010 | 0.0012 | <0.0010 |
| Iron, dissolved | mg/l | -- | 0.3 | 22 | 23 | 17 | 26 | 27 | 31 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.0005 | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium, dissolved | mg/l | -- | -- | 110 | 140 | 110 | 120 | 130 | 150 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.8 | 3.4 | 3.1 | 3.9 | 4.2 | 4.7 |
| Mercury | mg/l | -- | -- | -- | -- | -- | <0.0001 | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | -- | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Nickel, dissolved | mg/l | -- | -- | 0.014 | 0.016 | 0.012 | 0.012 | 0.015 | 0.012 |
| Potassium, dissolved | mg/l | -- | -- | 7.8 | 9.7 | 9.5 | 10 | 12 | 14 |
| Silicon, dissolved | mg/l | -- | -- | 11 | 12 | 12 | 12 | 12 | 14 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 250 | 230 | 220 | 250 | 260 | 280 |
| Strontium, dissolved | mg/l | -- | -- | 1.8 | 2.1 | 1.8 | 2 | 2.2 | 2.3 |
| Sulfur, dissolved | mg/l | -- | -- | 4.6 | 3.4 | 5.2 | <5 | 5 | 2.8 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | <0.00005 | 0.000050 | <0.000050 | <0.000050 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.0050 | <0.0050 | <0.0050 |
| Vanadium, dissolved | mg/l | -- | -- | 0.010 | 0.016 | 0.0093 | 0.013 | 0.012 | 0.017 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | 0.007 | <0.0050 | <0.0050 | <0.0050 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | 0.014 | 0.013 | <0.0010 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2833 | 3009 | 2322 | 2918 | 3473 | 3030 |
| Temperature (Field) | deg c | -- | 15 | 15.3 | 8.4 | 14.1 | 9.5 | 14.7 | 7.8 |
| pH (Field) | - | -- | -- | 6.54 | 6.57 | 6.51 | 6.66 | 6.75 | 7.15 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|-----------------|------------------|------------------|------------------|------------------|------------------|--------------|
| | | | | 06-Sep-2013 (2b) | 12-May-2014 (27) | 27-Aug-2014 (28) | 20-May-2015 (29) | 18-Aug-2015 (28) | 17-June-2016 |
| | | | | P1-91 | P1-91 | P1-91 | P1 | P1-91 | P1-91 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1400 | 1700 | 1500 | 1600 | 1600 | 1760 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.0 | 1.5 | 1.2 | 1.9 | 1.3 | 0.66 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 12 | 11 | 10 | 7.0 | 10 | 10 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 200 | 220 | 210 | 210 | 250 | 257 |
| Chloride | mg/l | -- | 250 | 280 | 350 | 280 | 320 | 300 | 307 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 72 | 89 | 73 | 80 | 82 | 80.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1300 | 1600 | 1300 | 1500 | 1600 | 1330 |
| Nitrate as N | mg/l | 10 | -- | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.5 |
| Nitrite as N | mg/l | 1.0 | -- | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | < 0.5 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5.5 | 5.8 | 5.8 | 6.3 | 5.8 | 5.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.22 | 0.77 | 0.45 | 0.47 | 0.56 | 0.33 |
| Sulphate | mg/l | -- | 500 (3) | <1 | <1 | <1 | < 1 | <20 (33) | 7 |
| Total Dissolved Solids | mg/l | -- | 500 | 2060 | 2120 | 2150 | 2440 | 2320 | 2321 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.0067 | 0.008 | 0.0097 | 0.009 | 0.0066 | 0.08 |
| Barium, dissolved | mg/l | 1 | -- | 0.26 | 0.33 | 0.26 | 0.27 | 0.3 | 0.258 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 | <0.00050 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.6 | 1.8 | 2.5 | 2.4 | 2 | 1.66 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | <0.0001 | <0.00010 | <0.0001 | <0.00010 | < 0.00002 |
| Calcium, dissolved | mg/l | -- | -- | 330 | 410 | 350 | 380 | 410 | 349 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | <0.03 | <0.0050 | <0.005 | <0.0050 | 0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0012 | 0.0024 | 0.0020 | 0.0024 | 0.0019 | 0.002 |
| Copper, dissolved | mg/l | -- | 1 | <0.0010 | <0.001 | 0.0011 | <0.001 | <0.0010 | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 24 | 28 | 23 | 16 | 24 | 21.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 | <0.00050 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 110 | 140 | 120 | 130 | 130 | 113 |
| Manganese, dissolved | mg/l | -- | 0.05 | 3.7 | 5.1 | 4 | 4.6 | 4.8 | 4.98 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | <0.0001 | < 0.00002 |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 | <0.00050 | 0.0028 |
| Nickel, dissolved | mg/l | -- | -- | 0.012 | 0.016 | 0.012 | 0.014 | 0.015 | 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 13 | 13 | 13 | 15 | 15 | 14.9 |
| Silicon, dissolved | mg/l | -- | -- | 12 | 13 | 13 | 13 | 14 | 12.4 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | <0.0001 | <0.00010 | <0.0001 | <0.00010 | 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 230 | 250 | 260 | 270 | 280 | 266 |
| Strontium, dissolved | mg/l | -- | -- | 1.9 | 2.2 | 2 | 2.3 | 2.2 | 2.06 |
| Sulfur, dissolved | mg/l | -- | -- | 5.5 | 2.7 | 6.4 | 3.7 | 3.3 | 5.7 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | <0.00005 | <0.000050 | <0.00005 | <0.000050 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | <0.005 | <0.0050 | <0.005 | <0.0050 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.011 | 0.016 | 0.011 | 0.01 | 0.015 | 0.0191 |
| Zinc, dissolved | mg/l | -- | 5 | <0.0050 | <0.005 | 0.0067 | <0.005 | <0.0050 | 0.006 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | 0.010 | 0.014 | 0.0020 | <0.0020 (33) | < 0.001 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2974 | 3324 | 3141 | 3108 | 3991 | 2870 |
| Temperature (Field) | deg c | -- | 15 | 12.7 | 11.5 | 14.4 | 10.8 | 12.4 | 10.5 |
| pH (Field) | - | -- | -- | 6.85 | 6.68 | 6.94 | 6.66 | 6.79 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 (03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|---------------|
| | | | | 22-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 25-April-2019 |
| | | | | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1770 | 1610 | 1140 | 1470 | 1290 | 1310 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.8 | 0.88 | 0.76 | 0.84 | 1.03 | 1.1 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | -- | 5 | 7 | 6 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 236 | -- | 161 | 187 | 201 | 212 |
| Chloride | mg/l | -- | 250 | 240 | 282 | 174 | 255 | 219 | 216 |
| Conductivity | umho/c | -- | -- | -- | -- | 2450 | 2910 | 2540 | 2649 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 64.6 | 77.4 | 61.4 | 61.6 | 64.2 | 84.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1350 | 1540 | 1190 | 1430 | 1120 | 1300 |
| Nitrate as N | mg/l | 10 | -- | < 0.1 | -- | < 0.05 | < 0.5 | < 0.05 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.1 | -- | < 0.05 | < 0.5 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5.5 | -- | 4.3 | 5.6 | 6.1 | 6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | 0.01 | < 0.01 | < 0.01 | 0.105 |
| Phosphorus | mg/l | -- | -- | 0.2 | 0.27 | 0.11 | 0.25 | 0.19 | 0.17 |
| Sulphate | mg/l | -- | 500 (3) | 4 | -- | 3 | < 10 | 6 | 1 |
| Total Dissolved Solids | mg/l | -- | 500 | 2333 | 2080 | 1434 | 1924 | 1650 | 1717 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.09 | -- | 0.16 | 0.14 | 0.12 | 0.13 |
| Barium, dissolved | mg/l | 1 | -- | 0.249 | -- | 0.242 | 0.293 | 0.218 | 0.264 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 2.38 | 1.97 | 1.46 | 1.74 | 1.44 | 1.65 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.00002 | -- | < 0.000014 | < 0.000015 | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 352 | -- | 308 | 368 | 278 | 338 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.004 | -- | 0.003 | 0.003 | 0.004 | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0022 | -- | < 0.005 | 0.0013 | 0.0019 | 0.0026 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | -- | < 0.002 | < 0.0001 | 0.0001 | 0.0037 |
| Iron, dissolved | mg/l | -- | 0.3 | 21.6 | 22.1 | 17.7 | 25.9 | 22.8 | 25.9 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00016 |
| Magnesium, dissolved | mg/l | -- | -- | 113 | -- | 102 | 124 | 103 | 110 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.9 | 6.1 | 4.6 | 6.07 | 3.97 | 4.91 |
| Mercury | mg/l | -- | -- | < 0.00002 | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0006 | -- | 0.0001 | < 0.0001 | 0.0001 | 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.01 | -- | < 0.01 | < 0.01 | 0.01 | 0.0098 |
| Potassium, dissolved | mg/l | -- | -- | 15.6 | -- | 17.8 | 17.1 | 14.5 | 15 |
| Silicon, dissolved | mg/l | -- | -- | 14.2 | -- | 12.8 | 11.3 | 10.8 | 9.75 |
| Silver, dissolved | mg/l | -- | -- | 0.00002 | -- | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 271 | 254 | 223 | 244 | 229 | 217 |
| Strontium, dissolved | mg/l | -- | -- | 2.03 | -- | 1.85 | 2.13 | 1.45 | 2.1 |
| Sulfur, dissolved | mg/l | -- | -- | 5.6 | -- | 3 | 6.9 | 10.4 | 6.6 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0161 | -- | 0.0117 | 0.0064 | 0.0086 | 0.0101 |
| Zinc, dissolved | mg/l | -- | 5 | 0.007 | -- | < 0.005 | < 0.005 | < 0.005 | 0.005 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.004 | -- | < 0.001 | 0.005 | 0.011 | < 0.002 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3320 | 3140 | 2220 | 2150 | 1378 | 3160 |
| Temperature (Field) | deg c | -- | 15 | 13.1 | 6.6 | 11.9 | 6.8 | 12.9 | 7.1 |
| pH (Field) | - | -- | -- | 6.7 | 6.6 | 6.8 | 6.6 | 6.7 | 6.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | RPD | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|--------------|-------------|------------|------------|---------|------------|
| | | | | 26-Sept-2019 | 27-May-2020 | 5-Nov-2020 | 5-Nov-2020 | | 27-May-21 |
| | | | | P1-91 | P1-91 | P1-91 | Dup #4 | | P1-90 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1140 | 1330 | 1220 | 1140 | 6.78% | 1630 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.15 | 1.4 | 1.22 | 1.25 | 2.43% | 1.55 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | 7 | 6 | 6 | 0.00% | 8 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 207 | 226 | 196 | 200 | 2.02% | 259 |
| Chloride | mg/l | -- | 250 | 212 | 232 | 222 | 219 | 1.36% | 260 |
| Conductivity | umho/c | -- | -- | 2462 | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 74.3 | 72.8 | 60.3 | 61.9 | 2.62% | 22.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1100 | 1270 | 981 | 995 | 1.42% | 1510 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 0.19 | 0.14 | 0.14 | 0.00% | 0.93 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | 0.28 | 0.08 | 0.07 | 13.33% | 0.85 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 6.2 | 6 | 6.4 | 5.7 | 11.57% | 6.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.091 | 0.017 | 0.005 | 0.007 | 33.33% | <0.002 |
| Phosphorus | mg/l | -- | -- | 0.13 | 0.2 | 0.2 | 0.13 | 42.42% | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | < 10 | 3 | 5 | 5 | 0.00% | <10 |
| Total Dissolved Solids | mg/l | -- | 500 | 1559 | 1782 | 1605 | 1553 | 3.29% | 2128 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.11 | 0.1 | 0.11 | 0.12 | 8.70% | 0.18 |
| Barium, dissolved | mg/l | 1 | -- | 0.225 | 0.267 | 0.137 | 0.147 | 7.04% | 0.338 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | 0.0001 | < 0.0001 | 0.00% | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.76 | 2.16 | 1.85 | 1.84 | 0.54% | 2.84 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000029 | < 0.000029 | 0.000024 | < 0.000029 | 18.87% | < 0.000029 |
| Calcium, dissolved | mg/l | -- | -- | 275 | 327 | 228 | 240 | 5.13% | 389 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.003 | 0.003 | 0.011 | 0.003 | 114.29% | 0.004 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0022 | 0.0024 | 0.0058 | 0.0025 | 79.52% | 0.0036 |
| Copper, dissolved | mg/l | -- | 1 | 0.0013 | 0.0002 | 0.0002 | 0.0001 | 66.67% | 0.0015 |
| Iron, dissolved | mg/l | -- | 0.3 | 25.3 | 23 | 0.089 | 0.1 | 11.64% | 22.9 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00009 | < 0.00009 | 0.00011 | 0.00011 | 0.00% | < 0.00009 |
| Magnesium, dissolved | mg/l | -- | -- | 101 | 111 | 100 | 96 | 4.08% | 130 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.29 | 5.26 | 3.03 | 3.27 | 7.62% | 7.73 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00% | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0002 | < 0.0002 | 0.0005 | 0.0004 | 22.22% | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | 0.01 | 0.0137 | 0.0096 | 0.0095 | 1.05% | 0.0124 |
| Potassium, dissolved | mg/l | -- | -- | 16.1 | 18.5 | 20.4 | 19.8 | 2.99% | 23.8 |
| Silicon, dissolved | mg/l | -- | -- | 11.9 | 11.5 | 10.7 | 10.5 | 1.89% | 10.8 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | 100.00% | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 238 | 261 | 293 | 284 | 3.12% | 316 |
| Strontium, dissolved | mg/l | -- | -- | 1.42 | 2 | 1.44 | 1.49 | 3.41% | 2.69 |
| Sulfur, dissolved | mg/l | -- | -- | 5.3 | 4.7 | 6 | 6.2 | 3.28% | 6.7 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | 0.0002 | < 0.00005 | 120.00% | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.00% | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0074 | 0.0101 | 0.026 | 0.0078 | 107.69% | 0.0106 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.00% | < 0.005 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 | < 0.002 | 0.007 | 111.11% | <0.002 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2480 | 2398 | 2004 | -- | -- | 3220.00 |
| Temperature (Field) | deg c | -- | 15 | 12.5 | 10.2 | 10.7 | -- | -- | 8.60 |
| pH (Field) | - | -- | -- | 7.2 | 7.6 | 6.8 | -- | -- | 6.40 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | | P1-91 | P1-91 | |
|----------------------------------|--------|---------------------------------|--------------------|------------|--------|------------|------------|--------|
| | | | | 27-May-21 | | 18-Aug-21 | 18-Aug-21 | |
| | | | | Dup #4 | RPD | P1-90 | Dup #3 | RPD |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1630 | 0.00% | 1360 | 1270 | 6.84% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.58 | 1.92% | 1.4 | 1.4 | 0.00% |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8 | 0.00% | 7 | 6 | 15.38% |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 264 | 1.91% | 246 | 248 | 0.81% |
| Chloride | mg/l | -- | 250 | 267 | 2.66% | 301 | 297 | 1.34% |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20.9 | 6.03% | 23.6 | 22.2 | 6.11% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1520 | 0.66% | 1350 | 1340 | 0.74% |
| Nitrate as N | mg/l | 10 | -- | 0.71 | 26.83% | < 0.5 | < 0.5 | NC |
| Nitrite as N | mg/l | 1.0 | -- | <0.5 | NC | < 0.5 | < 0.5 | NC |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 6.2 | 1.60% | 5.5 | 5.4 | 1.83% |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.004 | NC | 0.007 | 0.012 | 52.63% |
| Phosphorus | mg/l | -- | -- | 0.24 | 23.26% | 0.15 | 0.15 | 0.00% |
| Sulphate | mg/l | -- | 500 (3) | <10 | NC | < 10 | < 10 | NC |
| Total Dissolved Solids | mg/l | -- | 500 | 2149 | 0.98% | 1966 | 1899 | 3.47% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.19 | 5.41% | 0.12 | 0.11 | 8.70% |
| Barium, dissolved | mg/l | 1 | -- | 0.345 | 2.05% | 0.326 | 0.324 | 0.62% |
| Beryllium, dissolved | mg/l | -- | -- | <0.0001 | NC | < 0.0001 | < 0.0001 | NC |
| Boron, dissolved | mg/l | 5 | -- | 2.83 | 0.35% | 2.7 | 2.66 | 1.49% |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000029 | NC | < 0.000029 | < 0.000029 | NC |
| Calcium, dissolved | mg/l | -- | -- | 292 | 28.49% | 349 | 346 | 0.86% |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.004 | 0.00% | 0.003 | 0.003 | 0.00% |
| Cobalt, dissolved | mg/l | -- | -- | 0.0036 | 0.00% | 0.0028 | 0.0027 | 3.64% |
| Copper, dissolved | mg/l | -- | 1 | 0.0021 | 33.33% | < 0.0002 | < 0.0002 | NC |
| Iron, dissolved | mg/l | -- | 0.3 | 23.2 | 1.30% | 22.3 | 22.9 | 2.65% |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.0002 | NC | < 0.00009 | < 0.00009 | NC |
| Magnesium, dissolved | mg/l | -- | -- | 131 | 0.77% | 117 | 115 | 1.72% |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.86 | 1.67% | 6.88 | 6.84 | 0.58% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | NC | < 0.00002 | < 0.00002 | NC |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0004 | NC | 0.0003 | 0.0005 | 50.00% |
| Nickel, dissolved | mg/l | -- | -- | 0.0153 | 20.94% | 0.0107 | 0.0102 | 4.78% |
| Potassium, dissolved | mg/l | -- | -- | 24.5 | 2.90% | 23.3 | 23 | 1.30% |
| Silicon, dissolved | mg/l | -- | -- | 10.8 | 0.00% | 11.1 | 11.1 | 0.00% |
| Silver, dissolved | mg/l | -- | -- | < 0.0002 | NC | < 0.0001 | < 0.0001 | NC |
| Sodium, dissolved | mg/l | -- | 200 (4) | 322 | 1.88% | 325 | 323 | 0.62% |
| Strontium, dissolved | mg/l | -- | -- | 2.73 | 1.48% | 2.2 | 2.17 | 1.37% |
| Sulfur, dissolved | mg/l | -- | -- | 6.9 | 2.94% | 3.7 | 3.7 | 0.00% |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | NC | < 0.00005 | < 0.00005 | NC |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | NC | < 0.005 | < 0.005 | NC |
| Vanadium, dissolved | mg/l | -- | -- | 0.011 | 3.70% | 0.0091 | 0.0084 | 8.00% |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | NC | < 0.005 | < 0.005 | NC |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | NC | < 0.002 | < 0.002 | NC |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 3480 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 13.3 | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | 6.85 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|----------------------------------|--------|---------------------------------|--------------------|-------------|------------|------------|------------|-----------|
| | | | | 31-May-2022 | 28-Oct-22 | 28-Oct-22 | 05-May-23 | 16-Aug-23 |
| | | | | P1-90 | P1-90 | P1-90 | P1-91 | P1-91 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1390 | 1430 | 1430 | 1130 | 1350 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.82 | 1.23 | 1.23 | 1.69 | 1.74 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | 6 | 6 | 7 | 5 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 234 | 225 | 225 | 135 | 251 |
| Chloride | mg/l | -- | 250 | 248 | 233 | 233 | 159 | 199 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | 2225 | 2580 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.2 | 12.4 | 12.4 | 9.8 | 7.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1360 | 1150 | 1150 | 1030 | 1120 |
| Nitrate as N | mg/l | 10 | -- | < 0.3 | < 0.5 | < 0.5 | < 0.05 | <0.40 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.3 | < 0.5 | < 0.5 | < 0.05 | <0.40 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 7.3 | 6.9 | 6.9 | 4.7 | 6.2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.06 | < 0.002 | < 0.002 | < 0.002 | 0.006 |
| Phosphorus | mg/l | -- | -- | 0.23 | 0.18 | 0.18 | 0.13 | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | 25 | < 10 | < 10 | < 1 | 3 |
| Total Dissolved Solids | mg/l | -- | 500 | 1905 | 1852 | 1852 | 1413 | 1570 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.09 | 0.13 | 0.13 | 0.13 | 0.10 |
| Barium, dissolved | mg/l | 1 | -- | 0.348 | 0.308 | 0.308 | 0.272 | 0.268 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 2.33 | 2.2 | 2.2 | 1.36 | 1.85 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000029 | < 0.000029 | < 0.000029 | < 0.000029 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 354 | 299 | 299 | 276 | 287 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.009 | 0.003 | 0.003 | 0.002 | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.003 | 0.0028 | 0.0028 | 0.0019 | 0.0029 |
| Copper, dissolved | mg/l | -- | 1 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0013 | 0.0008 |
| Iron, dissolved | mg/l | -- | 0.3 | 24.7 | 17.9 | 17.9 | 20.4 | 23.1 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00009 | < 0.00009 | < 0.00009 | < 0.00009 | <0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 116 | 98.9 | 98.9 | 83.6 | 98.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.73 | 5.56 | 5.56 | 5.38 | 5.06 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0003 | < 0.0002 | < 0.0002 | < 0.0002 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | 0.0096 | 0.01 | 0.01 | < 0.01 | 0.0107 |
| Potassium, dissolved | mg/l | -- | -- | 28.9 | 27.6 | 27.6 | 19.7 | 18.7 |
| Silicon, dissolved | mg/l | -- | -- | 11.5 | 8.09 | 8.09 | 8.58 | 9.94 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 289 | 308 | 308 | 168 | 246 |
| Strontium, dissolved | mg/l | -- | -- | 2.32 | 1.83 | 1.83 | 1.72 | 1.54 |
| Sulfur, dissolved | mg/l | -- | -- | 9.2 | 8.4 | 8.4 | 7.0 | 7.81 |
| Thallium, dissolved | mg/l | -- | -- | 0.00006 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0103 | 0.0078 | 0.0078 | 0.0069 | 0.007 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | 0.003 | 0.003 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3260 | 2400 | 2400 | 2289 | 2198 |
| Temperature (Field) | deg c | -- | 15 | 9 | 10.8 | 10.8 | 9.5 | 14.2 |
| pH (Field) | - | -- | -- | 7.1 | 6.7 | 6.7 | 6.82 | 6.83 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 01-Nov-1990 | 08-Aug-1991 | 04-Dec-1991 | 29-Apr-1992 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 143 | -- | 76 | 17 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | -- | -- | <0.1 |
| Bicarbonate | mg/l | -- | -- | 169 | -- | 92 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | <0.5 |
| Carbonate (CO3) | mg/l | -- | -- | 2.4 | -- | <1 | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | -- | 478 | <3 |
| Chloride | mg/l | -- | 250 | 21 | 1.2 | 2 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.5 | -- | 4.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | 0.06 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 151 | -- | 130 | 26 |
| Nitrate as N | mg/l | 10 | -- | 1.78 | -- | 0.13 | 0.47 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | 0.27 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.65 | -- | 3.02 | <0.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.65 | -- | -- | <0.1 |
| Phosphate | mg/l | -- | -- | <0.1 | <0.1 | -- | 0.1 |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 6.88 | 0.14 |
| Sulphate | mg/l | -- | 500 (3) | 54 | 10 | 16 | 18 |
| Total Dissolved Solids | mg/l | -- | 500 | 244 | 84 | 72 | 50 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | 0.7 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.25 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | <0.01 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 39 | -- | 24 | 7 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.05 | -- | <0.05 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.77 | 2.51 | 3.1 | 0.26 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.05 | -- | <0.05 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 13 | -- | 17 | 2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.1 | <0.05 | <0.05 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.1 | -- | <0.1 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.05 | -- | 0.06 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | -- | 14 | 1 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 10.7 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 23 | 4 | 7 | 6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | 9 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.05 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.05 | -- | 0.12 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 580 | 106 | 100 | 104 |
| pH (Field) | - | -- | -- | 8.32 | -- | 6.3 | 7.2 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | 5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Sep-1992 | 27-Nov-1992 | 03-May-1993 | 10-Nov-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 14 | 44 | 16 | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | <0.1 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2 | <1 | -- | -- |
| Bromide | mg/l | -- | -- | 0.7 | <0.5 | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | 5 | <3 | 3 |
| Chloride | mg/l | -- | 250 | <1 | <1 | 2 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 1.2 | 0.9 |
| Fluoride | mg/l | 1.5 | -- | 0.07 | 0.06 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 23 | 39 | 19 | 31 |
| Nitrate as N | mg/l | 10 | -- | 0.36 | 0.17 | 0.53 | 0.48 |
| Nitrite as N | mg/l | 1.0 | -- | 0.14 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | <0.1 | <0.1 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | <0.1 | <0.1 | -- | -- |
| Phosphate | mg/l | -- | -- | 0.2 | 0.52 | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 14 | 12 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 40 | 40 | 60 | 50 |
| Total Organic Carbon | mg/l | -- | -- | 0.2 | 0.5 | 1.4 | 1.3 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.25 | 0.71 | 0.18 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.02 | 0.13 | <0.01 | <0.01 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | 0.14 | <0.01 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 6 | 14 | 6 | 6 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | 0.04 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.39 | 1.35 | 0.3 | 0.13 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 2 | <1 | 1 | 4 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.45 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 9 | 3 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 11.2 | 8 | 9.4 | 7.5 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | 4 | 8 | 5 |
| Strontium, dissolved | mg/l | -- | -- | 0.04 | 0.26 | <0.01 | <0.01 |
| Sulfur, dissolved | mg/l | -- | -- | 4 | 10 | 6 | 4 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 75 | 80 | 80 | 80 |
| pH (Field) | - | -- | -- | 6.9 | 6.4 | 5.3 | 7.4 |
| Temperature (Field) | deg c | -- | 15 | 8 | 9 | 6 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 03-Jun-1994 | 09-Sep-1994 | 24-Nov-1994 | 04-Jun-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 17 | 17 | 21 | 18 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.02 | 0.03 | -- | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | <1 | -- | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | <3 | <3 | <3 |
| Chloride | mg/l | -- | 250 | 2 | 1 | 2 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.1 | 0.5 | 0.8 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 22 | 18 | 17 | 21 |
| Nitrate as N | mg/l | 10 | -- | 0.24 | 0.27 | -- | 0.26 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.08 | 0.11 | -- | 0.29 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.06 | 0.08 | -- | 0.27 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.54 | 1.02 | -- | 0.77 |
| Sulphate | mg/l | -- | 500 (3) | 10 | 9 | -- | 8 |
| Total Dissolved Solids | mg/l | -- | 500 | 40 | 40 | 48 | 56 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.05 | 0.07 | -- | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | <0.01 | <0.01 | -- | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00015 | <0.00015 | -- | <0.00015 |
| Calcium, dissolved | mg/l | -- | -- | 4 | 4 | -- | 5 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | -- | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0004 | <0.0004 | -- | 0.0028 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | <0.005 | -- | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.09 | 0.21 | 0.21 | 0.14 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | -- | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 3 | 2 | -- | 2 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | <1 | <1 | -- | 6 |
| Silicon, dissolved | mg/l | -- | -- | 6.3 | 6.8 | -- | 8 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | -- | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 1 | 1 | 2 | 8 |
| Strontium, dissolved | mg/l | -- | -- | 0.04 | 0.034 | 0.05 | 0.044 |
| Sulfur, dissolved | mg/l | -- | -- | 4 | 4 | -- | 3 |
| Thallium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | -- | <0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.007 | <0.007 | -- | <0.007 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | -- | 0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | -- | 0.006 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 70 | 625 | 650 | 55 |
| pH (Field) | - | -- | -- | 6.2 | 6.6 | 7 | 5.9 |
| Temperature (Field) | deg c | -- | 15 | 7 | 9 | 10 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1995 | 07-Nov-1995 | 17-Jul-1996 | 21-Nov-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 8 | 15 | 31 | 22 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | -- | 0.04 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2 | -- | <1 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | <3 | <3 | 8 |
| Chloride | mg/l | -- | 250 | 4 | 5 | 11 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.5 | 1.4 | 2 | 1.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 21 | 21 | 36 | 30 |
| Nitrate as N | mg/l | 10 | -- | 0.29 | -- | 0.24 | 0.18 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.08 | -- | 0.11 | 0.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.05 | -- | 0.07 | 0.07 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.76 | -- | 3.59 | 3.37 |
| Sulphate | mg/l | -- | 500 (3) | 8 | -- | 5 | 5 |
| Total Dissolved Solids | mg/l | -- | 500 | 44 | 44 | 52 | 52 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.17 | -- | 0.1 | 0.13 |
| Barium, dissolved | mg/l | 1 | -- | 0.01 | -- | 0.01 | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | -- | 0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00015 | -- | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 5 | -- | 6 | 7 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.29 | -- | 0.05 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0004 | -- | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | -- | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.43 | 0.44 | 0.24 | 0.29 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 2 | -- | 5 | 3 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | 0.0005 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 1 | -- | <1 | <1 |
| Silicon, dissolved | mg/l | -- | -- | 11.2 | -- | 9 | 9 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.01 | <0.001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 5 | 8 | 5 |
| Strontium, dissolved | mg/l | -- | -- | 0.05 | 0.055 | 0.701 | 0.066 |
| Sulfur, dissolved | mg/l | -- | -- | 3 | -- | 2 | <3 |
| Thallium, dissolved | mg/l | -- | -- | <0.005 | -- | 1.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.007 | -- | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | -- | <0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 75 | 80 | 100 | 55 |
| pH (Field) | - | -- | -- | 7.2 | 7.8 | 8.1 | 7.2 |
| Temperature (Field) | deg c | -- | 15 | 10 | 12 | 6 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|--------------|-------------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Jun-1997 | 12-Sep-1997 | 06-Apr-1998 | 11-Jun-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 26 | 21 | 23 | 25 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.04 | 0.05 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | <1 | <1 | 2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 6 | 5 | 5 | <3 |
| Chloride | mg/l | -- | 250 | 8 | 5 | 30 | 20 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.1 | 2.1 | 2.7 | 0.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 32 | 30 | 70 | 51 |
| Nitrate as N | mg/l | 10 | -- | 0.55 | 0.48 | 0.63 | 0.69 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.18 | 0.1 | 0.13 | <0.05 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.15 | 0.06 | 0.08 | <0.01 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 2.33 | 1.08 | 1.85 | 0.53 |
| Sulphate | mg/l | -- | 500 (3) | 7 | 7 | 18 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | 60 | 60 | 136 | 96 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.16 | 0.13 | 0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.01 | 0.01 | 0.02 | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | 0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.006 | <0.005 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 8 | 7 | 18 | 14 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | 0.15 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | 0.014 | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.48 | 0.15 | 0.01 | 0.28 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 3 | 3 | 6 | 4 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | <0.03 | <0.03 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 2 | 1 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 9.9 | 9.3 | 6.6 | 7.4 |
| Silver, dissolved | mg/l | -- | -- | <0.004 | <0.001 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | 4 | 6 | 7 |
| Strontium, dissolved | mg/l | -- | -- | 0.079 | 0.067 | 0.166 | 0.123 |
| Sulfur, dissolved | mg/l | -- | -- | <3 | <3 | 6 | 4 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | 0.003 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 100 | 70 | 180 | 180 |
| pH (Field) | - | -- | -- | 6.8 | -- ⁽¹⁾ | 5.88 | 5.8 |
| Temperature (Field) | deg c | -- | 15 | 2 | 11 | 3 | 11.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 19-Aug-1998 | 25-May-1999 | 30-Aug-1999 | 02-Jun-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 25 | 147 | 32 | 48 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 5 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | 39 | <3 | 8 |
| Chloride | mg/l | -- | 250 | 15 | 11 | 18 | 5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.9 | 14.4 | 1.1 | 2.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 44 | 135 | 58 | 44 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.76 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | <0.05 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.49 | -- | -- | 3.63 |
| Sulphate | mg/l | -- | 500 (3) | 9 | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 84 | 216 | 96 | 104 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.15 | -- | -- | 1.03 |
| Barium, dissolved | mg/l | 1 | -- | <0.01 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 11 | -- | -- | 11 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.21 | <0.01 | <0.01 | 2.4 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 4 | -- | -- | 4 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.5 | <0.01 | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 1 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 8.7 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 23 | 7 | 6 |
| Strontium, dissolved | mg/l | -- | -- | 0.094 | 0.271 | 0.102 | 0.102 |
| Sulfur, dissolved | mg/l | -- | -- | 3 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 160 | 160 | 65 | 200 |
| pH (Field) | - | -- | -- | 6.5 | 6.14 | -- ⁽¹⁾ | 6.31 |
| Temperature (Field) | deg c | -- | 15 | 10 | 6 | 7 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Aug-2000 | 27-May-2001 | 08-Aug-2001 | 04-Apr-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 68 | 17 | 15 | 31 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.06 | 0.03 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <4 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 3 | 30 | 1 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.7 | 0.6 | 1.1 | 1.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 32 | 23 | 8 | 35 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 2.98 | 0.85 | 2.38 | 0.61 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 92 | 72 | 40 | 73 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.13 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.01 | <0.01 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 8 | 6 | 3 | 9 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.24 | 0.02 | 0.06 | 0.68 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 3 | 2 | <1 | 3 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | 3 | 3 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.063 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 90 | 400 | 600 | 620 |
| pH (Field) | - | -- | -- | 6.25 | 7 | 6.9 | 6.2 |
| Temperature (Field) | deg c | -- | 15 | 11.3 | 9.5 | 9 | 5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Aug-2002 | 14-May-2003 | 27-Aug-2003 | 30-May-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 27 | 28 | 31 | 15 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.02 | 0.08 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 3 | 2 | 2 | 1.2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.8 | 1 | 1.1 | 2.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 14 | 35 | 21 | 28.1 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.28 | 0.06 | 0.017 |
| Phosphorus | mg/l | -- | -- | 0.88 | 1.54 | 1.52 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 60 | 67 | 56 | 72 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.05 | <0.05 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 4 | 9 | 5 | 7.37 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.01 | 0.01 | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 1 | 3 | 2 | 2.35 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.005 | <0.005 | <0.005 | <0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | <2 | 5 | 13 | 4.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 590 | 60 | 100 | 210 |
| pH (Field) | - | -- | -- | 6.4 | 7 | 7.2 | 7.2 |
| Temperature (Field) | deg c | -- | 15 | 16 | 7 | 14 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-May-2005 | 25-Aug-2005 | 01-Jun-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 24 | 10 | 23 | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | 0.04 | <0.02 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 16 | 91 | 275 | 358 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.6 | 1.6 | 4.7 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 35 | 124 | 357 | 381 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.12 | 0.1 | 0.06 | 0.06 |
| Phosphorus | mg/l | -- | -- | 2.11 | 1.67 | 2.7 | 1.62 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 72 | 225 | 683 | 871 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | 0.01 | <0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 9 | 33 | 95 | 100 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.01 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 3 | 10 | 29 | 32 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 10 | 32 | 67 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 111 | 220 | 800 | 410 |
| pH (Field) | - | -- | -- | 7.4 | 6.1 | 6.2 | 6.8 |
| Temperature (Field) | deg c | -- | 15 | 5 | 15.9 | 10 | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Jun-2007 | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 16 | 31 | 29 | 30 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | <0.02 | 0.03 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 536 | 663 | 53 | 192 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.9 | 3.1 | 2.5 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 493 | 503 | 183 | 123 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.1 | 0.09 | 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 2.51 | 5.16 | 0.86 | 0.93 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1200 | 1480 | 689 | 540 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 130 | 132 | 47 | 31 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 41 | 42 | 16 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 0.09 | 0.07 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 130 | 211 | 121 | 87 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 695 | 1700 | 650 | 650 |
| pH (Field) | - | -- | -- | 7.1 | 7 | 6.4 | 6 |
| Temperature (Field) | deg c | -- | 15 | 11 | 12.9 | 8.5 | 11 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|---------------------|---------------------|---------------------|
| | | | | 14-Apr-2009 | 14-Aug-2009 | 01-Jun-2010 | 11-Aug-2010 |
| | | | | P-2-90 | 2-90 | C-1 | C-3 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 42 | 47 | 43 | 44 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.08 | 0.10 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 110 | 74 | 120 | 120 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.7 | 1.7 | 1.7 | 1.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 63 | 29 | 51 | 46 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.02 | 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 5.0 | 4.2 ⁽¹⁴⁾ | 5.5 ⁽¹⁴⁾ | 2.8 ⁽¹⁴⁾ |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 335 | 240 | 330 | 330 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.01 | 0.02 | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 74.8 | 62.0 | 84.2 | 85.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 500 | 328 | 565 | 490 |
| pH (Field) | - | -- | -- | 7 | 6.04 | 6.34 | 6.47 |
| Temperature (Field) | deg c | -- | 15 | 5 | 11.9 | 9.5 | 12.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-----------------|
| | | | | 28-Apr-2011 | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 (3) |
| | | | | R-6 | P2-90 | 2-90 | P2-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 39 | 44 | 55 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | <0.05 | <0.050 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 180 | 99 | 42 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.4 | 1.7 | 2.0 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 110 | 36 | 18 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | 0.022 | -- |
| Phosphorus | mg/l | -- | -- | 6.9 | 2.9 | 3.7 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 532 | 306 | 186 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | <0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | 0.02 | 0.29 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.01 | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 107 | 65.8 | 50.3 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 796 | 383 | 260 | -- |
| pH (Field) | - | -- | -- | 7.04 | 6.23 | 6.51 | -- |
| Temperature (Field) | deg c | -- | 15 | 7.4 | 11.1 | 8.5 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 | 26-Aug-2014 |
| | | | | R-6 | 2-90 | P2-90 | P2-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 100 | 84 | 97 | 78 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.15 | <0.050 | <0.050 | 0.068 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 79 | 21 | 12 | 9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.7 | 3.1 | 3.1 | 4.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 46 | 11 | 14 | 8.1 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.011 | 0.045 | 0.028 | 0.063 |
| Phosphorus | mg/l | -- | -- | 5.7 | 9.7 | 3.9 | 11 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 274 | 260 | 242 | 204 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.00050 | <0.02 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.03 | 0.04 | 0.09 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 92.4 | 46.2 | 46 | 38 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 463 | 226 | 220 | 187 |
| pH (Field) | - | -- | -- | 7.50 | 6.26 | 7.32 | 7.29 |
| Temperature (Field) | deg c | -- | 15 | 7.1 | 11.1 | 12.4 | 12.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|--------------|-------------|
| | | ODWQS(169 | ODWQS- | 20-May-2015 | 18-Aug-2015 | 16-June-2016 | 22-Aug-2016 |
| | | /03)-Health | AO | P2-90 | P2-90 | P2-90 | P2-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 98 | 99 | 84 | 101 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.075 | <0.050 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | 2.2 | 2.8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.1 | 2.5 | 2.9 | 2.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 11 | 8.5 | 10 | 9 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.064 | 0.023 | 0.06 | 0.06 |
| Phosphorus | mg/l | -- | -- | 2.3 | 5.9 | 7.77 | 1.34 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 272 | 214 | 109 | 119 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | < 0.005 | < 0.005 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.00050 | <0.00050 | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | 0.03 | 0.03 | 0.015 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | < 0.001 | < 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 45 | 46 | 40.4 | 46.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 306 | 409 | 175 | 211 |
| pH (Field) | - | -- | -- | 7.28 | 7.31 | 8.9 | 9.7 |
| Temperature (Field) | deg c | -- | 15 | 11.9 | 13.1 | 6.4 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | /03)-Health | AO | P2-90 | P2-90 | P2-90 | P2-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 104 | 83 | 101 | 93 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | -- | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 3.7 | 2.6 | 2.6 | 1.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.5 | 4.7 | 3.5 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 15 | 17 | 17 | 10 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.31 | 0.06 | 0.04 | 0.04 |
| Phosphorus | mg/l | -- | -- | 2.52 | 2.12 | 3.98 | 2.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 120 | 118 | 124 | 106 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.026 | 0.02 | 0.028 | 0.022 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | < 0.001 | 0.001 | 0.001 | 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 46.2 | 52.7 | 51.8 | 43.1 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | < 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 227 | 198 | 182 | 153 |
| pH (Field) | - | -- | -- | 6.7 | 6.8 | 6.5 | 7.1 |
| Temperature (Field) | deg c | -- | 15 | 7.2 | 10.5 | 7.7 | 10.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-------------|---------|---------------|--------------|-----------------|------------|
| | | ODWQS(169 | ODWQS- | 24-April-2019 | 25-Sept-2019 | 26-May-2020 (6) | 4-Nov-2020 |
| | | /03)-Health | AO | P2-90 | P2-90 | P2-90 | P2-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 104 | 93 | -- | 102 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.16 | -- | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 45 | -- | -- |
| Chloride | mg/l | -- | 250 | 4.8 | < 0.5 | -- | 2.4 |
| Conductivity | µmho/c | -- | -- | -- | 200 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.4 | 3.5 | -- | 3.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 18 | 15 | -- | 14 |
| Nitrate as N | mg/l | 10 | -- | -- | 3.54 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.7 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 3.09 | 3.71 | -- | 0.056 |
| Phosphorus | mg/l | -- | -- | 9.3 | 5.84 | -- | 2.05 |
| Sulphate | mg/l | -- | 500 (3) | -- | < 1 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 128 | 112 | -- | 122 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | < 0.01 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.008 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | < 0.005 | < 0.005 | -- | < 0.005 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000015 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 4.41 | 3.68 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | 0.007 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0016 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.032 | 0.01 | -- | 0.051 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | < 0.00002 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 1.68 | 1.36 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | < 0.001 | 0.001 | -- | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0001 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0013 | < 0.01 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 0.3 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 5.11 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 50 | 50.5 | -- | 50.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.04 | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 1 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0006 | 0.0006 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 263 | 225 | -- | 230 |
| pH (Field) | - | -- | -- | 7.1 | 7.7 | -- | 8.8 |
| Temperature (Field) | deg c | -- | 15 | 6.1 | 11.7 | -- | 8.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P2-90 | P2-90 | P2-90 | P2-90 | P2-90 | P2-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-----------------------------|-------------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 26-May-2021 | 18-Aug-2021 | 31-May-2022 ⁽¹²⁾ | 28-Oct-2022 | 04-May-23 | 15-Aug-23 |
| | | /03)-Health | AO | P2-90 | P2-90 | P2-90 | P2-90 | P2-90 | P2-90 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 107 | 95 | -- | 127 | 104 | 98 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.02 | 0.01 | -- | < 0.01 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2 | 10.5 | -- | 28.7 | 16.5 | 12.1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | 445 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.3 | 3.4 | -- | 4.3 | 2.5 | 4.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 14 | 10 | -- | 65 | 49 | 40 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.037 | 0.05 | -- | 0.013 | 0.017 | 0.018 |
| Phosphorus | mg/l | -- | -- | 1.15 | 0.32 | -- | -- | 1.39 | 3.75 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 123 | 122 | -- | 324 | 260 | 216 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.006 | < 0.005 | -- | < 0.005 | < 0.005 | <0.005 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 12.2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0001 | < 0.0001 | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.026 | 0.019 | -- | 0.007 | 0.338 | 0.035 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 4.49 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.002 | 0.002 | -- | 0.002 | 0.007 | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 49.5 | 47.6 | -- | 108 | 80.8 | 77.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 226 | 240 | -- | 530 | 634 | 367 |
| pH (Field) | - | -- | -- | 8.5 | 7 | -- | 6.64 | 6.65 | 7.25 |
| Temperature (Field) | deg c | -- | 15 | 9.4 | 10.1 | -- | 10.0 | 7.0 | 11.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 01-Nov-1990 | 08-Aug-1991 | 04-Dec-1991 | 01-May-1992 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 44 | -- | 74 | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | -- | -- | <0.1 |
| Bicarbonate | mg/l | -- | -- | 54 | -- | 90 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | 1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | <0.5 |
| Carbonate (CO3) | mg/l | -- | -- | <1 | -- | <1 | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 1 | -- | 1111 | 8 |
| Chloride | mg/l | -- | 250 | <1 | 0.3 | 3 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.4 | -- | 2.8 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | 0.04 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 26 | -- | 70 | 51 |
| Nitrate as N | mg/l | 10 | -- | 0.28 | -- | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | <0.1 | -- | 0.84 | <0.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | <0.1 | -- | -- | <0.1 |
| Phosphate | mg/l | -- | -- | 0.92 | <0.1 | -- | 0.18 |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 9.6 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 5 | 5.3 | 6 | 24 |
| Total Dissolved Solids | mg/l | -- | 500 | 65 | 88 | 44 | 80 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | 2.3 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.07 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 7 | -- | 18 | 12 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.05 | -- | 0.06 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 2.67 | 1.98 | 49.38 | 0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.05 | -- | <0.05 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 2 | -- | 6 | 5 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.05 | <0.05 | 0.39 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.1 | -- | <0.1 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.05 | -- | 0.13 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 1 | -- | 22 | 1 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 3.6 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | 5 | 5 | 2 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.07 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | 6 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.05 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.05 | -- | 0.21 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 196 | 52 | 58 | 148 |
| pH (Field) | - | -- | -- | 7 | -- | 6.05 | 6.4 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 08-Sep-1992 | 27-Nov-1992 | 05-May-1993 | 10-Nov-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 28 | 38 | 18 | 57 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | <0.1 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | -- | -- |
| Bromide | mg/l | -- | -- | <0.5 | 1.2 | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | 8 | 10 | 10 |
| Chloride | mg/l | -- | 250 | 4 | 8 | 2 | 7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 1.4 | 2.2 |
| Fluoride | mg/l | 1.5 | -- | 0.04 | 0.04 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 46 | 54 | 23 | 70 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | 0.24 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | <0.1 | <0.1 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | <0.1 | <0.1 | -- | -- |
| Phosphate | mg/l | -- | -- | 0.17 | 0.21 | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 11 | 12 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 60 | 60 | 40 | 110 |
| Total Organic Carbon | mg/l | -- | -- | 1.4 | 1.2 | 2.3 | 3 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | 0.36 | <0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | <0.01 | 0.02 | <0.01 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | <0.01 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 12 | 15 | 6 | 18 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.3 | 0.06 | 0.04 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 4 | 4 | 2 | 6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 0.05 | 0.01 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | 0.07 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 1 | 1 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 8.2 | 7.6 | 0.8 | 4.1 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | 3 | 3 | 5 |
| Strontium, dissolved | mg/l | -- | -- | 0.13 | 0.14 | <0.01 | <0.01 |
| Sulfur, dissolved | mg/l | -- | -- | 6 | 10 | 3 | 6 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 95 | 120 | 70 | 170 |
| pH (Field) | - | -- | -- | 6.5 | 6 | 6 | 6.9 |
| Temperature (Field) | deg c | -- | 15 | 8 | 7 | 6 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 03-Jun-1994 | 08-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 35 | 42 | -- | 59 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | <3 | -- | <3 |
| Chloride | mg/l | -- | 250 | 5 | 3 | -- | 7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.8 | 0.9 | -- | 2.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 46 | 31 | -- | 79 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 60 | 70 | -- | 104 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.01 | 0.04 | -- | 0.19 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | -- | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | 1 | -- | 4 |
| Strontium, dissolved | mg/l | -- | -- | <0.01 | 0.125 | -- | 0.179 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 100 | 115 | -- | 150 |
| pH (Field) | - | -- | -- | 6.3 | 6.4 | -- | 6 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 14 | -- | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|----------------------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 11-Sep-1995 | 07-Nov-1995 ⁽³⁾ | 16-Jul-1996 | 21-Nov-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 45 | -- | 48 | 63 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | -- | 5 | 11 |
| Chloride | mg/l | -- | 250 | 3 | -- | 6 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.4 | -- | 0.9 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 56 | -- | 55 | 83 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 80 | -- | 84 | 104 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.48 | -- | 0.07 | 0.16 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | -- | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4 | -- | 5 | 5 |
| Strontium, dissolved | mg/l | -- | -- | 0.122 | -- | 0.123 | 0.16 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 130 | -- | 100 | 110 |
| pH (Field) | - | -- | -- | 7 | -- | 7.2 | 7.2 |
| Temperature (Field) | deg c | -- | 15 | 13 | -- | 8.5 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 10-Jun-1997 | 10-Sep-1997 | 06-Apr-1998 | 11-Jun-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 64 | 62 | 38 | 66 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 10 | <3 | 5 | <3 |
| Chloride | mg/l | -- | 250 | 2 | 4 | 3 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.1 | 1.9 | 3.2 | 2.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 62 | 70 | 53 | 79 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 100 | 108 | 72 | 112 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 15 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.4 | 0.42 | 0.17 | 0.11 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 6 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | 0.02 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | 4 | 1 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.143 | 0.141 | 0.106 | 0.161 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 110 | 150 | 100 | 160 |
| pH (Field) | - | -- | -- | 6.6 | 7.2 | 6.71 | 6.6 |
| Temperature (Field) | deg c | -- | 15 | 6.5 | 15 | 3.5 | 13 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 20-Aug-1998 | 23-Apr-1999 | 25-May-1999 | 25-Jun-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 73 | 56 | 80 | 132 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | <0.02 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | >1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | 13 | 10 | 15 |
| Chloride | mg/l | -- | 250 | 4 | 4 | 3 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.4 | 3.7 | 3.5 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 86 | 58 | 75 | 142 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | 0.18 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | 0.11 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 0.27 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | 0.27 | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 0.99 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 9 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 116 | 88 | 88 | 160 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | <0.03 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.01 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.01 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.005 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 20 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | <0.005 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.18 | 0.01 | 0.02 | 0.12 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | <0.002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 6 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | <0.01 | <0.01 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | <0.0002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 1 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 2 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 6 | 3 | 4 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.168 | 0.114 | 0.132 | 0.289 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 3 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.2 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | <0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | <0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 190 | 97 | 150 | 310 |
| pH (Field) | - | -- | -- | 7.2 | 7 | 7.04 | 6.7 |
| Temperature (Field) | deg c | -- | 15 | 12 | 7 | 5 | 10 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 29-Jul-1999 | 30-Aug-1999 | 30-Sep-1999 | 27-Oct-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 126 | 79 | 81 | 70 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.02 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | <1 | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | 7 | 3 | 3 |
| Chloride | mg/l | -- | 250 | 4 | 3 | 4 | 5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.9 | 1.5 | 1.5 | 1.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 85 | 93 | 70 | 71 |
| Nitrate as N | mg/l | 10 | -- | -- | 0.15 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | <0.1 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.05 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | 0.03 | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 3.44 | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | 13 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 160 | 120 | 120 | 108 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | <0.03 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.02 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.02 | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | <0.005 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 24 | -- | 17 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | <0.01 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | <0.005 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.32 | <0.01 | 0.08 | 0.17 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.05 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 8 | -- | 7 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.0002 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 1 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 6 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | 6 | 6 | 7 |
| Strontium, dissolved | mg/l | -- | -- | 0.264 | 0.181 | 0.16 | 0.153 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 5 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | <0.5 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | <0.05 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | <0.01 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | <0.01 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.001 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 280 | 120 | 190 | 166 |
| pH (Field) | - | -- | -- | 6.84 | 6.81 | 6.47 | 6.42 |
| Temperature (Field) | deg c | -- | 15 | 12.5 | 9 | 12 | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 29-Nov-1999 | 21-Dec-1999 | 28-Apr-2000 | 30-May-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 72 | 70 | 89 | 130 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 0.11 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | 2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | <4 | 38 | 29 |
| Chloride | mg/l | -- | 250 | 5 | 3 | 8 | 21 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.3 | 1.5 | 8.9 | 11.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 76 | 74 | 95 | 194 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | 0.15 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | 1.04 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 1.83 | 19.9 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | 50 |
| Total Dissolved Solids | mg/l | -- | 500 | 104 | 84 | 88 | 228 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | <0.05 | 0.2 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | 0.04 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 19 | 18 | 25 | 53 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.15 | 0.09 | 0.17 | 0.14 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 7 | 7 | 8 | 15 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.02 | 0.1 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | 2 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 2.62 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 6 | 7 | 11 |
| Strontium, dissolved | mg/l | -- | -- | 0.157 | 0.161 | 0.19 | 0.375 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | 17 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 175 | 120 | 263 | 340 |
| pH (Field) | - | -- | -- | 6.5 | 6.62 | 6.42 | 8.4 |
| Temperature (Field) | deg c | -- | 15 | 10 | 8 | 5 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 29-Jun-2000 | 27-Jul-2000 | 17-Aug-2000 | 27-Sep-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 171 | 159 | 188 | 121 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | 0.09 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | <1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 35 | 15 | 10 | 11 |
| Chloride | mg/l | -- | 250 | 11 | 11 | 11 | 12 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.4 | 4.7 | 3.5 | 3.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 194 | 158 | 188 | 120 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | 0.11 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 0.38 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.49 | 1.91 | 0.03 | 1.93 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 13 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 264 | 276 | 220 | 132 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | <0.05 | 0.08 | 0.12 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.04 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.002 | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.04 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.0001 | -- |
| Calcium, dissolved | mg/l | -- | -- | 53 | 45 | 52 | 33 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0008 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | <0.001 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.53 | 0.04 | 0.15 | 0.17 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | <0.001 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 15 | 11 | 14 | 9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.11 | 0.11 | 0.07 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 2 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 3.59 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 9 | 10 | 10 | 6 |
| Strontium, dissolved | mg/l | -- | -- | 0.43 | 0.33 | 0.388 | 0.28 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 5 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.001 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.001 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | <0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | <0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 480 | 344 | 387 | 267 |
| pH (Field) | - | -- | -- | 6.2 | 6.45 | 6.62 | 5.6 |
| Temperature (Field) | deg c | -- | 15 | 13 | 14.3 | 13.6 | 11.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 30-Oct-2000 | 01-Dec-2000 | 21-Dec-2000 | 26-May-2001 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 80 | 102 | 127 | 93 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | 10 | 11 | 10 |
| Chloride | mg/l | -- | 250 | 8 | 8 | 9 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.5 | 2.1 | 2.8 | 1.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 86 | 107 | 126 | 91 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | 0.15 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.12 | 2.56 | 1.77 | 3.58 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | 13 |
| Total Dissolved Solids | mg/l | -- | 500 | 148 | 96 | 172 | 120 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.12 | <0.05 | <0.05 | <0.05 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | 0.0002 |
| Calcium, dissolved | mg/l | -- | -- | 23 | 28 | 34 | 25 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | 0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.12 | 0.05 | 0.01 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 7 | 9 | 10 | 7 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.01 | 0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | <1 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 2.97 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0006 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 9 | 10 | 8 |
| Strontium, dissolved | mg/l | -- | -- | 0.201 | 0.231 | 0.261 | 0.197 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 175 | 300 | 180 | 200 |
| pH (Field) | - | -- | -- | 6.06 | 6.4 | 7.2 | 6.9 |
| Temperature (Field) | deg c | -- | 15 | 11.7 | 9 | 7 | 10 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 08-Aug-2001 | 04-Apr-2002 | 07-Aug-2002 | 14-May-2003 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 103 | 78 | 171 | 67 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.02 | <0.02 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | <1 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <5 | <5 | <5 | <5 |
| Chloride | mg/l | -- | 250 | 5 | 3 | 3 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 2.2 | 2.9 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 102 | 76 | 163 | 71 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | 0.89 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.38 | 0.15 | 0.27 | 0.28 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | 0.01 | 0.03 |
| Phosphorus | mg/l | -- | -- | 3.16 | 0.72 | 0.93 | 0.48 |
| Sulphate | mg/l | -- | 500 (3) | 16 | 17 | 17 | 9 |
| Total Dissolved Solids | mg/l | -- | 500 | 156 | 120 | 226 | 100 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.05 | <0.05 | <0.01 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.02 | 0.04 | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | <0.002 | <0.002 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | <0.05 | <0.02 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 26 | 19 | 47 | 20 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.001 | 0.002 | 0.008 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | <0.0002 | 0.0008 | <0.0002 |
| Copper, dissolved | mg/l | -- | 1 | 0.011 | <0.001 | 0.007 | 0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.04 | <0.01 | <0.01 | 0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 9 | 7 | 11 | 5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | <0.01 | 0.043 | <0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.005 | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 1 | 1 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 5.37 | 2.99 | 4.1 | 1.8 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 5 | 7 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.226 | 0.119 | 0.381 | 0.135 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | 0.003 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | 0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 390 | 510 | 590 | 80 |
| pH (Field) | - | -- | -- | 6.2 | 6.7 | 6.9 | 7.2 |
| Temperature (Field) | deg c | -- | 15 | 15 | 5 | 17 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 | 27-May-2005 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 147 | 75 | 67 | 76 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.03 | 0.03 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | <0.5 | <0.5 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <5 | 6 | 8 | <5 |
| Chloride | mg/l | -- | 250 | 3 | 9.8 | 11.1 | 49 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 1.8 | 2.2 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 156 | 68.3 | 90 | 106 |
| Nitrate as N | mg/l | 10 | -- | 0.22 | <0.2 | 0.4 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.2 | <0.2 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.09 | 0.22 | 0.26 | 0.27 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.06 | 0.006 | < 0.003 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.9 | <0.05 | <0.05 | 0.71 |
| Sulphate | mg/l | -- | 500 (3) | 26 | 3.4 | 9.6 | 7 |
| Total Dissolved Solids | mg/l | -- | 500 | 215 | 112 | 86 | 208 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | 0.009 | <0.005 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.04 | 0.015 | 0.018 | 0.03 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | <0.05 | 0.013 | 0.032 | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 36 | 20.6 | 22.8 | 31 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | <0.005 | <0.005 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | 0.0001 | <0.0001 | <0.0002 |
| Copper, dissolved | mg/l | -- | 1 | 0.004 | 0.0008 | 0.0007 | 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.01 | <0.03 | <0.03 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.0005 | <0.0005 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 16 | 4.11 | 8.02 | 7 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.008 | 0.008 | <0.005 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.001 | <0.001 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | <0.001 | <0.001 | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 1 | 1.1 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 4.1 | 2.32 | 3.7 | 3.1 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | 8 | 5.6 | 24 |
| Strontium, dissolved | mg/l | -- | -- | 0.282 | 0.148 | 0.156 | 0.208 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 1.8 | 3.9 | 2.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | <0.00005 | <0.00005 | <0.0001 |
| Tin, dissolved | mg/l | -- | -- | -- | <0.001 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.005 | <0.005 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.001 | 0.001 | 0.0007 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | <0.005 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | 0.003 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 140 | 130 | 190 | 320 |
| pH (Field) | - | -- | -- | 7 | 7.85 | 7.2 | 7.3 |
| Temperature (Field) | deg c | -- | 15 | 14 | 7.4 | 15 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 | 29-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 116 | 153 | 113 | 93 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | <0.02 | <0.02 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 3 | <1 | <1 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | <5 | 7 | <5 |
| Chloride | mg/l | -- | 250 | 9 | 14 | 15 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.7 | 5.6 | 2.3 | 3.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 139 | 97 | 113 | 93 |
| Nitrate as N | mg/l | 10 | -- | 0.15 | <0.1 | 0.15 | 0.13 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.18 | 0.38 | 0.18 | 0.25 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.03 | 0.04 | 0.02 |
| Phosphorus | mg/l | -- | -- | 1.7 | 1.11 | 0.3 | 0.51 |
| Sulphate | mg/l | -- | 500 (3) | 18 | 12 | 11 | 5 |
| Total Dissolved Solids | mg/l | -- | 500 | 194 | 231 | 185 | 123 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.01 | <0.01 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.03 | 0.03 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.06 | 0.01 | 0.05 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 41 | 29 | 32 | 29 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.001 | <0.001 | <0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | 0.0009 | <0.0002 | 0.0006 |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | 0.001 | 0.001 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.03 | <0.03 | 0.07 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 9 | 6 | 8 | 5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.07 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 2 | 1 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 4.4 | 3.3 | 4.2 | 3.3 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 9 | 34 | 8 | 7 |
| Strontium, dissolved | mg/l | -- | -- | 0.261 | 0.181 | 0.188 | 0.147 |
| Sulfur, dissolved | mg/l | -- | -- | 6 | 4 | 3.7 | 1.7 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | 0.0004 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.001 | <0.001 | 0.002 | 0.002 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 195 | 355 | 220 | 150 |
| pH (Field) | - | -- | -- | 7.2 | 6.8 | 7 | 7.7 |
| Temperature (Field) | deg c | -- | 15 | 15.6 | 12.5 | 15 | 14.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|----------------------|----------|-------------|-------------|--------------------|-----------------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 | 13-Apr-2009 P-4-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 130 | 88 | 182 | 62 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.02 | <0.02 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | <1 | <2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <5 | <5 | <5 | 20 |
| Chloride | mg/l | -- | 250 | 7 | 2 | 4 | 190 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.9 | 2.9 | 3.7 | 1.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 132 | 86 | 162 | 280 |
| Nitrate as N | mg/l | 10 | -- | 0.11 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | 0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.11 | <0.1 | <0.1 | 2.2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.02 | < 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 3.21 | 3.05 | 1.99 | 5.2 |
| Sulphate | mg/l | -- | 500 (3) | 11 | 14 | 12 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | 192 | 136 | 243 | 465 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.01 | <0.01 | <0.005 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.02 | 0.04 | 0.070 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.02 | 0.05 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 33 | 26 | 45 | 84 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.001 | 0.001 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0002 | <0.0002 | <0.0002 | <0.0005 |
| Copper, dissolved | mg/l | -- | 1 | <0.001 | 0.002 | <0.001 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.03 | <0.03 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 12 | 5 | 12 | 17 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.001 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 2 | 2 | 2.6 |
| Silicon, dissolved | mg/l | -- | -- | 4.9 | 3.4 | 5.2 | 2.6 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 6 | 7 | 8 | 10 |
| Strontium, dissolved | mg/l | -- | -- | 0.214 | 0.139 | 0.298 | 0.52 |
| Sulfur, dissolved | mg/l | -- | -- | 3.7 | 5 | 4 | 3.2 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.003 | 0.002 | <0.001 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | -- ⁽¹⁰⁾ | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 600 | 135 | 330 | 600 |
| pH (Field) | - | -- | -- | 7.2 | 7.2 | 6.7 | 7.4 |
| Temperature (Field) | deg c | -- | 15 | 13 | 8 | 16 | 5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|---------------------|---------------------|---------------------|-------------|
| | | ODWQS(169 | ODWQS- | 13-Aug-2009 | 01-Jun-2010 | 11-Aug-2010 | 29-Apr-2011 |
| | | /03)-Health | AO | 4-90 | C-5 | R-1 | S-4 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 196 | 211 | 258 | 68 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2 | <2 | <2 | <2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 6 | 5 | 7 | 36 |
| Chloride | mg/l | -- | 250 | 9 | 11 | 16 | 18 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.5 | 4.5 | 2.5 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | 260 | 300 | 47 |
| Nitrate as N | mg/l | 10 | -- | 0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.9 | 1.1 | 0.3 | 2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.01 | < 0.01 | 0.04 |
| Phosphorus | mg/l | -- | -- | 3.6 ⁽¹⁴⁾ | 2.3 ⁽¹⁴⁾ | 2.4 ⁽¹⁴⁾ | 4.8 |
| Sulphate | mg/l | -- | 500 (3) | 15 | 17 | 23 | 11 |
| Total Dissolved Solids | mg/l | -- | 500 | 258 | 326 | 350 | 104 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.005 | <0.005 | <0.005 | 0.012 |
| Barium, dissolved | mg/l | 1 | -- | 0.036 | 0.045 | 0.053 | 0.014 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.06 | 0.07 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 46 | 65 | 74 | 14 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | 0.002 | 0.001 | 0.003 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | 0.0010 | <0.0005 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 14 | 24 | 28 | 3.1 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.003 | 0.007 | 0.016 | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | 0.0002 | <0.0001 | 0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.001 | 0.004 | 0.004 | <0.001 |
| Potassium, dissolved | mg/l | -- | -- | 1.6 | 1.6 | 1.8 | 0.9 |
| Silicon, dissolved | mg/l | -- | -- | 4.0 | 4.1 | 4.3 | 2.4 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 8.0 | 8.2 | 9.0 | 19 |
| Strontium, dissolved | mg/l | -- | -- | 0.28 | 0.41 | 0.45 | 0.088 |
| Sulfur, dissolved | mg/l | -- | -- | 5.2 | 6.2 | 8.0 | 2.8 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.001 | <0.001 | <0.001 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | 0.007 | <0.005 | <0.005 | 0.010 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 412 | 509 | 540 | 210 |
| pH (Field) | - | -- | -- | 6.62 | 6.76 | 5.73 | 8.37 |
| Temperature (Field) | deg c | -- | 15 | 12.4 | 10.0 | 13.0 | 4.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 | 23-Apr-2013 |
| | | /03)-Health | AO | P4-90 | 4-90 | 4-90 | S-1 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 112 | 200 | 200 | 99 |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.050 | <0.050 | 0.090 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2 | <2.0 | <2.0 | <2.0 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 9 | 16 | 9.4 | 12 |
| Chloride | mg/l | -- | 250 | 14 | 9 | 8 | 7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.5 | 2.3 | 2.0 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 130 | 230 | 230 | 110 |
| Nitrate as N | mg/l | 10 | -- | 0.2 | <0.10 | 0.11 | 0.12 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | 0.011 | <0.010 | <0.010 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1 | 0.59 | 0.74 | 1.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.2 | <0.10 | 0.11 | 0.12 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | 0.011 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 2.0 | 3.0 | 2.5 | 2.7 |
| Sulphate | mg/l | -- | 500 (3) | 14 | 17 | 16 | 15 |
| Total Dissolved Solids | mg/l | -- | 500 | 194 | 212 | 258 | 152 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.005 | 0.0071 | <0.0050 | 0.016 |
| Barium, dissolved | mg/l | 1 | -- | 0.026 | 0.038 | 0.039 | 0.027 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.065 | 0.063 | 0.021 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Calcium, dissolved | mg/l | -- | -- | 36 | 57 | 58 | 33 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.0050 | <0.0050 | <0.0050 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | 0.0013 | 0.0012 | 0.0012 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium, dissolved | mg/l | -- | -- | 9.4 | 21 | 21 | 6.1 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.002 | 0.0023 | 0.02 | 0.0023 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Nickel, dissolved | mg/l | -- | -- | 0.004 | 0.0016 | 0.0018 | <0.0010 |
| Potassium, dissolved | mg/l | -- | -- | 1.4 | 1.3 | 1.5 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 2.9 | 3.9 | 4.1 | 2.9 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5.8 | 8.1 | 6.9 | 12 |
| Strontium, dissolved | mg/l | -- | -- | 0.21 | 0.37 | 0.34 | 0.15 |
| Sulfur, dissolved | mg/l | -- | -- | 4.4 | 6.1 | 5.3 | 5.2 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.000050 | <0.000050 | <0.000050 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.0050 | <0.0050 | <0.0050 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0005 | 0.00057 | 0.00087 | 0.0011 |
| Zinc, dissolved | mg/l | -- | 5 | 0.006 | <0.0050 | <0.0050 | <0.0050 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.0010 | <0.0010 | <0.0010 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 150 | 368 | 490 | 218 |
| pH (Field) | - | -- | -- | 6.47 | 6.77 | 6.91 | 7.39 |
| Temperature (Field) | deg c | -- | 15 | 13.5 | 7.4 | 12.1 | 4.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-------------|----------------------|----------------------|-------------|
| | | ODWQS(169 | ODWQS- | 06-Sep-2013 | 12-May-2014 | 26-Aug-2014 | 20-May-2015 |
| | | /03)-Health | AO | 4-90 | P4-90 | P4-80 | P-4 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 170 | 110 | 190 | 99 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | <0.050 | 0.062 | 0.17 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | <2.0 | <2.0 | <2.0 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 6.7 | 14 | 4.3 | 17 |
| Chloride | mg/l | -- | 250 | 6 | 5 | 5 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.7 | 3.6 | 2.2 | 2.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 190 | 91 | 220 | 110 |
| Nitrate as N | mg/l | 10 | -- | 0.13 | <0.10 | <0.10 | <0.10 |
| Nitrite as N | mg/l | 1.0 | -- | <0.010 | <0.010 | <0.010 | <0.010 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.72 | <2.0 ⁽¹⁰⁾ | <1.0 ⁽¹⁰⁾ | 0.92 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.13 | <0.10 | <0.10 | <0.10 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.016 | 0.015 | <0.010 | 0.011 |
| Phosphorus | mg/l | -- | -- | 9.7 | 7.6 | 6.3 | 4.6 |
| Sulphate | mg/l | -- | 500 (3) | 12 | 12 | 19 | 21 |
| Total Dissolved Solids | mg/l | -- | 500 | 200 | 166 | 236 | 178 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.0050 | 0.012 | <0.0050 | <0.005 |
| Barium, dissolved | mg/l | 1 | -- | 0.039 | 0.026 | 0.044 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.063 | 0.021 | 0.052 | 0.012 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | <0.0001 | <0.00010 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 50 | 28 | 62 | 32 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | <0.005 | <0.0050 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Copper, dissolved | mg/l | -- | 1 | 0.0014 | 0.003 | <0.0010 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 16 | 5.2 | 17 | 6.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.0020 | <0.002 | 0.0068 | <0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.0011 | 0.001 | <0.0010 | <0.001 |
| Potassium, dissolved | mg/l | -- | -- | 1.7 | 1.8 | 2.1 | 0.72 |
| Silicon, dissolved | mg/l | -- | -- | 4 | 2.8 | 4.1 | 2.6 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | <0.0001 | <0.00010 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 6.8 | 12 | 7.9 | 6.5 |
| Strontium, dissolved | mg/l | -- | -- | 0.28 | 0.16 | 0.35 | 0.21 |
| Sulfur, dissolved | mg/l | -- | -- | 4.1 | 3.2 | 6.0 | 6.5 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | <0.00005 | <0.000050 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | <0.005 | <0.0050 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.00088 | 0.0009 | 0.00077 | <0.0005 |
| Zinc, dissolved | mg/l | -- | 5 | 0.0084 | 0.007 | <0.0050 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 343 | 289 | 410 | 313 |
| pH (Field) | - | -- | -- | 6.61 | 7.43 | 7.70 | 7.51 |
| Temperature (Field) | deg c | -- | 15 | 12.4 | 9.3 | 13.8 | 9.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|------------|
| | | ODWQS(169 | ODWQS- | 18-Aug-2015 | 16-Jun-2016 | 22-Aug-2016 | 2-May-2017 |
| | | /03)-Health | AO | P4-90 | P4-90 | P4-90 | P4-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 220 | 138 | 177 | 93 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | < 0.01 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5.6 | < 5 | 14 | 21 |
| Chloride | mg/l | -- | 250 | 5.7 | 4.8 | 3.8 | 3.2 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 2.5 | 1.8 | 2.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 290 | 149 | 184 | 102 |
| Nitrate as N | mg/l | 10 | -- | <0.10 | 0.2 | 0.1 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | <0.010 | < 0.1 | 0.2 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.22 | 0.3 | 0.3 | 0.87 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | < 0.01 | < 0.01 | 0.03 |
| Phosphorus | mg/l | -- | -- | 4.0 | 5.25 | 2.03 | 6.66 |
| Sulphate | mg/l | -- | 500 (3) | 16 | 18 | 20 | 11 |
| Total Dissolved Solids | mg/l | -- | 500 | 272 | 184 | 241 | 114 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.0050 | 0.02 | 0.02 | < 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.051 | 0.031 | 0.037 | 0.024 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.067 | 0.023 | 0.047 | 0.022 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | < 0.00002 | < 0.00002 | < 0.000014 |
| Calcium, dissolved | mg/l | -- | -- | 76 | 46.9 | 50.7 | 32.4 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | < 0.002 | < 0.002 | < 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | <0.00050 | < 0.0001 | < 0.0001 | < 0.005 |
| Copper, dissolved | mg/l | -- | 1 | 0.0015 | < 0.002 | < 0.002 | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | < 0.005 | < 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | < 0.00002 | 0.00003 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 25 | 7.8 | 13.9 | 5.07 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.012 | < 0.001 | 0.001 | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | 0.0002 | 0.0002 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | 0.0020 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 1.7 | 1.2 | 1.5 | 1.5 |
| Silicon, dissolved | mg/l | -- | -- | 4.5 | 3.26 | 4.12 | 3.02 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 8.8 | 8.2 | 8.5 | 5.3 |
| Strontium, dissolved | mg/l | -- | -- | 0.46 | 0.265 | 0.305 | 0.164 |
| Sulfur, dissolved | mg/l | -- | -- | 5.6 | 5.9 | 5.4 | 4.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.00064 | 0.0011 | 0.0018 | 0.0013 |
| Zinc, dissolved | mg/l | -- | 5 | <0.0050 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 339 | 300 | 387 | 223 |
| pH (Field) | - | -- | -- | 7.39 | 7.2 | 6.8 | 6.6 |
| Temperature (Field) | deg c | -- | 15 | 10.1 | 9.1 | 10.7 | 7.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|---------------|
| | | ODWQS(169 | ODWQS- | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 24-April-2019 |
| | | /03)-Health | AO | P4-90 | P4-90 | P4-90 | P4-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 161 | 109 | 231 | 80 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | 63 | 24 | 24 |
| Chloride | mg/l | -- | 250 | 5.6 | 6.2 | 4.5 | 2.8 |
| Conductivity | µmho/c | -- | -- | 384 | 298 | 490 | 192 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3 | 2.9 | 2.8 | 13.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 196 | 146 | 252 | 91 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 0.23 | < 0.05 | 0.43 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.4 | 0.9 | 0.3 | 0.8 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.02 | < 0.01 | 0.186 |
| Phosphorus | mg/l | -- | -- | 2.31 | 6.23 | 0.79 | 0.35 |
| Sulphate | mg/l | -- | 500 (3) | 17 | 22 | 22 | 9 |
| Total Dissolved Solids | mg/l | -- | 500 | 191 | 154 | 262 | 98 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0.03 | 0.05 | 0.02 |
| Barium, dissolved | mg/l | 1 | -- | 0.039 | 0.033 | 0.044 | 0.019 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.046 | 0.018 | 0.054 | 0.013 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000014 | < 0.000015 | 0.000021 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 54.6 | 47.9 | 69.5 | 29.4 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.002 | < 0.001 | 0.003 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.005 | < 0.0001 | 0.0004 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | 0.0016 | 0.0011 | 0.003 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | 0.006 | < 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00015 |
| Magnesium, dissolved | mg/l | -- | -- | 14.4 | 6.37 | 19.1 | 4.25 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.007 | 0.001 | 0.018 | < 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0003 | 0.0002 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.0008 |
| Potassium, dissolved | mg/l | -- | -- | 1.7 | 2.2 | 1.6 | 1.6 |
| Silicon, dissolved | mg/l | -- | -- | 4.67 | 2.76 | 4.18 | 2.92 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 8.6 | 4.8 | 7.4 | 3 |
| Strontium, dissolved | mg/l | -- | -- | 0.308 | 0.213 | 0.402 | 0.148 |
| Sulfur, dissolved | mg/l | -- | -- | 7.3 | 6.8 | 7.8 | 2.8 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0015 | 0.0008 | 0.0009 | 0.0007 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | 0.016 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | -- | 0.019 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 316 | 242 | 375 | 220 |
| pH (Field) | - | -- | -- | 6.8 | 3.4 | 7.0 | 6.9 |
| Temperature (Field) | deg c | -- | 15 | 12.7 | 7.1 | 11.4 | 2.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-----------------------------|-------------|------------|-------------|
| | | ODWQS(169 | ODWQS- | 25-Sept-2019 ⁽⁶⁾ | 26-May-2020 | 4-Nov-2020 | 26-May-2021 |
| | | /03)-Health | AO | P4-90 | P4-90 | P4-90 | P4-90 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 164 | 216 | 124 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.05 | 0.02 | 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | <3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 24 | < 5 | 14 |
| Chloride | mg/l | -- | 250 | -- | 3.5 | 4.1 | 5.1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.9 | 5.4 | 3.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 180 | 265 | 130 |
| Nitrate as N | mg/l | 10 | -- | -- | 0.06 | < 0.05 | 0.08 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | < 0.05 | 0.06 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 1 | 0.5 | 0.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.075 | 0.027 | 0.016 |
| Phosphorus | mg/l | -- | -- | -- | 5.98 | 0.23 | 0.57 |
| Sulphate | mg/l | -- | 500 (3) | -- | 9 | 15 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 185 | 248 | 143 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.2 | 0.05 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.04 | 0.046 | 0.023 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.014 | 0.066 | 0.017 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000015 | 0.000017 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 59.9 | 74.4 | 38.6 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | 0.005 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0005 | 0.0002 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0026 | 0.0011 | 0.0043 |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.219 | < 0.005 | 0.025 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.0002 | 0.00003 | 0.00006 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 7.29 | 19.2 | 8.18 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.015 | 0.007 | 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0002 | 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0018 | 0.0018 | 0.0013 |
| Potassium, dissolved | mg/l | -- | -- | -- | 1.3 | 1.6 | 0.8 |
| Silicon, dissolved | mg/l | -- | -- | -- | 3.46 | 4.34 | 3.41 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.00002 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 4.9 | 5.1 | 5.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.292 | 0.431 | 0.268 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 3.5 | 5.8 | 4.1 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | 0.011 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0015 | 0.001 | 0.0006 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | < 0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 512 | 750 | 277 |
| pH (Field) | - | -- | -- | -- | 8.3 | 8.1 | 9.3 |
| Temperature (Field) | deg c | -- | 15 | -- | 7.6 | 7.7 | 7.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P4-90 | P4-90 | P4-90 | P4-90 | P4-90 |
|----------------------------------|--------|-------------|---------|-----------------|-------------|-------------|------------|-----------|
| | | ODWQS(169 | ODWQS- | 17-Aug-2021 (6) | 31-May-2022 | 28-Oct-2022 | 03-May-23 | 15-Aug-23 |
| | | /03)-Health | AO | P4-90 | P4-90 | P4-90 | P4-90 | P4-90 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 152 | 167 | 103 | 157 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.07 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | < 3 | 5 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 12 | 10 | 20 | 20 |
| Chloride | mg/l | -- | 250 | -- | 9.1 | 8.2 | 1.2 | 7.1 |
| Conductivity | µmho/c | -- | -- | -- | 353 | 371 | 222 | 338 |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.3 | 2.6 | 4.6 | 4.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 175 | 188 | 102 | 158 |
| Nitrate as N | mg/l | 10 | -- | -- | 0.14 | 0.23 | 0.09 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | < 0.05 | < 0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.4 | 0.3 | 1.1 | 0.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.012 | 0.009 | 0.033 | 0.011 |
| Phosphorus | mg/l | -- | -- | -- | 0.92 | 1.16 | 0.46 | 0.29 |
| Sulphate | mg/l | -- | 500 (3) | -- | 14 | 13 | 9 | 15 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 184 | 193 | 116 | 183 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.02 | 0.02 | 0.05 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.036 | 0.035 | 0.053 | 0.032 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.03 | 0.049 | 0.019 | 0.042 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000015 | < 0.000010 | < 0.000010 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 54.7 | 53.7 | 34.3 | 48.1 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | 0.002 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | < 0.0001 | 0.0002 | 0.0001 | 0.0005 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0018 | 0.0008 | 0.0047 | 0.0025 |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.007 | < 0.005 | 0.039 | 0.019 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00002 | < 0.00002 | 0.00008 | 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 9.27 | 13.1 | 4.07 | 9.20 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | < 0.001 | 0.004 | 0.002 | 0.022 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0002 | 0.0001 | 0.0002 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.001 | < 0.01 | < 0.01 | 0.0011 |
| Potassium, dissolved | mg/l | -- | -- | -- | 1.9 | 1.2 | 2.1 | 1.6 |
| Silicon, dissolved | mg/l | -- | -- | -- | 3.93 | 2.72 | 2.68 | 3.18 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 4.8 | 3.5 | 3.8 | 4.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.267 | 0.294 | 0.164 | 0.25 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 5.7 | 4.6 | 3.5 | 5.27 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0007 | 0.0007 | 0.0008 | 0.0008 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.001 | < 0.001 | < 0.001 | 0.002 |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 370 | 350 | 280 | 297 |
| pH (Field) | - | -- | -- | -- | 6.92 | 6.89 | 7.36 | 7.32 |
| Temperature (Field) | deg c | -- | 15 | -- | 7.4 | 10.1 | 7.0 | 13.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 09-Aug-1991 | 04-Dec-1991 | 01-May-1992 | 07-Sep-1992 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 286 | 674 | 950 | 500 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | -- | <0.1 | <0.1 |
| Bicarbonate | mg/l | -- | -- | 349 | 822 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 13 | 11 |
| Bromide | mg/l | -- | -- | -- | -- | <0.5 | 0.9 |
| Carbonate (CO3) | mg/l | -- | -- | <1 | <1 | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 88 | 278 | 152 | 58 |
| Chloride | mg/l | -- | 250 | 79 | 180 | 298 | 174 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.3 | 69.6 | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | 0.09 | 0.09 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 361 | 789 | 1222 | 619 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 8.8 | 1.68 | 2.22 | 1.15 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 8.8 | -- | 2.22 | 1.15 |
| Phosphate | mg/l | -- | -- | -- | -- | 0.22 | 0.28 |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 2.11 | 0.32 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 13 | 7 | 18 | 4 |
| Total Dissolved Solids | mg/l | -- | 500 | 612 | 952 | 1490 | 940 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | 70 | 26 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | <0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.13 | 0.11 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.63 | 0.54 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 98 | 235 | 351 | 159 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.05 | <0.05 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.05 | 1.21 | 0.76 | 3.65 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.05 | <0.05 | <0.002 | 0.004 |
| Magnesium, dissolved | mg/l | -- | -- | 28 | 49 | 84 | 54 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.02 | 7.73 | 10.98 | 9.31 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.1 | 0.15 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.05 | 0.09 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 3 | 3 | 3 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 9.1 | 13.2 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31 | 75 | 100 | 79 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 1.66 | 1.26 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 11 | 5 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.02 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | 0.11 | 0.09 | 0.03 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | 0.008 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 837 | 1651 | 2420 | 1400 |
| Temperature (Field) | deg c | -- | 15 | 6.9 | 6.47 | 6.4 | 6.3 |
| pH (Field) | -- | -- | -- | -- | -- | 9 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-Nov-1992 | 03-May-1993 | 10-Nov-1993 | 03-Jun-1994 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 646 | 1186 | 634 | 886 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.28 | -- | -- | 3.45 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8 | -- | -- | 14 |
| Bromide | mg/l | -- | -- | 0.5 | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 86 | 169 | 120 | 155 |
| Chloride | mg/l | -- | 250 | 206 | 332 | 223 | 325 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 64 | 46 | 73.4 |
| Fluoride | mg/l | 1.5 | -- | 0.09 | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 740 | 1234 | 656 | 1020 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.31 | -- | -- | 7.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 1.03 | -- | -- | 4.05 |
| Phosphate | mg/l | -- | -- | 0.28 | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | <3 | -- | -- | 23 |
| Total Dissolved Solids | mg/l | -- | 500 | 1010 | 1660 | 1040 | 1740 |
| Total Organic Carbon | mg/l | -- | -- | 35 | 79 | 62 | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.03 | <0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.13 | 0.2 | 0.13 | 0.22 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.59 | 0.67 | 0.5 | 0.56 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | 0.004 | <0.002 | <0.00015 |
| Calcium, dissolved | mg/l | -- | -- | 204 | 336 | 187 | 308 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | 0.13 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.0004 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 5.07 | 4.88 | 2.89 | 3.53 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 56 | 96 | 46 | 61 |
| Manganese, dissolved | mg/l | -- | 0.05 | 8.54 | 13.5 | 7.7 | 11.4 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | 0.03 | 0.07 | <0.01 | 0.03 |
| Potassium, dissolved | mg/l | -- | -- | 5 | 4 | 7 | 15 |
| Silicon, dissolved | mg/l | -- | -- | 11.2 | 8.8 | 7.1 | 6.8 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 96 | 148 | 119 | 207 |
| Strontium, dissolved | mg/l | -- | -- | 1.42 | 2.75 | 1.32 | 2.01 |
| Sulfur, dissolved | mg/l | -- | -- | 8 | 9 | 9 | 10 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.007 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | 0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | -- | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1500 | 2750 | 1625 | 2600 |
| Temperature (Field) | deg c | -- | 15 | 6.3 | 6 | 6.5 | 6.5 |
| pH (Field) | -- | -- | -- | 7 | 9 | 8.5 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 09-Sep-1994 | 24-Nov-1994 | 04-Jun-1995 | 11-Sep-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 321 | 755 | 1298 | 795 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 2.83 | -- | 22.9 | 16.9 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 5 | -- | 7 | 7 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 45 | 122 | 185 | 116 |
| Chloride | mg/l | -- | 250 | 169 | 230 | 338 | 179 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 18.6 | 70 | 108 | 41 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 401 | 807 | 1071 | 715 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 7 | -- | 24.3 | 22.8 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 4.17 | -- | 1.4 | 5.9 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.16 | -- | 0.15 | 3.36 |
| Sulphate | mg/l | -- | 500 (3) | 13 | -- | 23 | 23 |
| Total Dissolved Solids | mg/l | -- | 500 | 710 | 1248 | 1840 | 1196 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | -- | <0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.16 | -- | 0.44 | 0.35 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.25 | -- | 0.84 | 0.7 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00015 | -- | <0.00015 | <0.00015 |
| Calcium, dissolved | mg/l | -- | -- | 157 | -- | 313 | 202 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.01 | -- | 0.08 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.0004 | -- | 0.0143 | 0.0076 |
| Copper, dissolved | mg/l | -- | 1 | 0.014 | -- | 0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 3.64 | 5.76 | 8.42 | 5.53 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 2 | -- | 70 | 51 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.5 | 8.23 | 13.4 | 7.55 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | 0.02 | -- | <0.01 | 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 15 | -- | 34 | 28 |
| Silicon, dissolved | mg/l | -- | -- | 7.5 | -- | 8.9 | 12.5 |
| Silver, dissolved | mg/l | -- | -- | 0.0012 | -- | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 61 | 135 | 214 | 124 |
| Strontium, dissolved | mg/l | -- | -- | 1.23 | 1.71 | 2.45 | 1.47 |
| Sulfur, dissolved | mg/l | -- | -- | 6 | -- | 9 | 10 |
| Thallium, dissolved | mg/l | -- | -- | <0.005 | -- | <0.005 | <0.005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.009 | -- | 0.01 | <0.007 |
| Zinc, dissolved | mg/l | -- | 5 | 0.01 | -- | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | -- | <0.001 | 0.003 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1050 | 2050 | 3300 | 2300 |
| Temperature (Field) | deg c | -- | 15 | 6.5 | 7 | 6.5 | 6.6 |
| pH (Field) | -- | -- | -- | 12 | 9 | 10 | 13 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Nov-1995 | 16-Jul-1996 | 21-Nov-1996 | 10-Jun-1997 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1089 | 776 | 790 | 1344 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 7.81 | 31 | 28.5 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 5 | 5 | 9 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 161 | 117 | 121 | 184 |
| Chloride | mg/l | -- | 250 | 215 | 139 | 154 | 258 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 76.1 | 43.1 | 45.2 | 74.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 928 | 597 | 584 | 1060 |
| Nitrate as N | mg/l | 10 | -- | -- | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 14.8 | 33.4 | 34.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | 6.99 | 2.4 | 5.9 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 0.17 | 0.2 | 1.57 |
| Sulphate | mg/l | -- | 500 (3) | -- | 20 | 19 | 34 |
| Total Dissolved Solids | mg/l | -- | 500 | 1524 | 1044 | 1096 | 1764 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.52 | 0.49 | 0.08 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.21 | 0.26 | 0.46 |
| Beryllium, dissolved | mg/l | -- | -- | -- | <0.01 | 0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.53 | 0.46 | 0.64 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | <0.005 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | -- | 168 | 158 | 324 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | 0.09 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.018 | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 11.3 | 2.71 | 11.6 | 5.15 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 43 | 46 | 61 |
| Manganese, dissolved | mg/l | -- | 0.05 | 10.5 | 6.82 | 5.29 | 8.87 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | 0.0006 | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | <0.01 | <0.03 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | -- | <0.01 | 0.02 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | 23 | 42 | 71 |
| Silicon, dissolved | mg/l | -- | -- | -- | 11.2 | 8.3 | 10 |
| Silver, dissolved | mg/l | -- | -- | -- | <0.01 | <0.001 | <0.004 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 159 | 121 | 129 | 240 |
| Strontium, dissolved | mg/l | -- | -- | 1.98 | 1.59 | 1.03 | 2.11 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 7 | 8 | 11 |
| Thallium, dissolved | mg/l | -- | -- | -- | 1.3 | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | <0.01 | <0.01 | 0.05 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.002 | <0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 2425 | 1140 | 1300 | 1950 |
| Temperature (Field) | deg c | -- | 15 | 7 | 6.6 | 6 | 6.6 |
| pH (Field) | -- | -- | -- | 14 | 9 | 6.5 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1997 | 11-Jun-1998 | 19-Aug-1998 | 25-May-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 818 | 1481 | 1285 | 1554 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 32.4 | 65.6 | 60.8 | 106 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8 | 7 | 6 | 52 |
| Bromide | mg/l | -- | -- | 24 | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 126 | 120 | 157 | 220 |
| Chloride | mg/l | -- | 250 | 145 | 203 | 153 | 284 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 52 | 75 | 59 | 78.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 629 | 1080 | 841 | 1015 |
| Nitrate as N | mg/l | 10 | -- | 0.17 | <0.1 | <0.1 | 0.15 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | 0.11 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 33.1 | 65.6 | 60.8 | 106 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.7 | 0 | 0 | <0.1 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.47 | 0.53 | 0.2 | 0.31 |
| Sulphate | mg/l | -- | 500 (3) | -- | 27 | 19 | 23 |
| Total Dissolved Solids | mg/l | -- | 500 | 1208 | 1816 | 1512 | 1908 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | <0.03 | <0.03 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.35 | 0.8 | 0.46 | 0.83 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.46 | 0.91 | 0.75 | 0.89 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 171 | 304 | 231 | 281 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | <0.005 | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 4.83 | 5.3 | 0.35 | 10.2 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 49 | 77 | 64 | 76 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.49 | 8.8 | 7.44 | 8.35 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.002 | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | <0.03 | 0.23 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 60 | 88 | 91 | 135 |
| Silicon, dissolved | mg/l | -- | -- | 9.2 | 7.7 | 10 | 12.9 |
| Silver, dissolved | mg/l | -- | -- | 0 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 139 | 221 | 155 | 188 |
| Strontium, dissolved | mg/l | -- | -- | 1.09 | 1.99 | 1.7 | 1.89 |
| Sulfur, dissolved | mg/l | -- | -- | 9 | <3 | 7 | 9 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1600 | 2060 | 2800 | 2500 |
| Temperature (Field) | deg c | -- | 15 | 7.3 | 7 | 6.9 | 6.91 |
| pH (Field) | -- | -- | -- | 15 | 12 | 12 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|--------------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 31-Aug-1999 | 31-May-2000 | 17-Aug-2000 | 27-May-2001 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1120 | 1510 | 1410 | 1350 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 45.3 | 90.5 | 86.1 | 74 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | 15 | 16 | 13 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 220 | 160 | 169 | 156 |
| Chloride | mg/l | -- | 250 | 130 | 186 | 129 | 129 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 73.1 | 65.8 | 67.8 | 70.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 884 | 852 | 859 | 781 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.41 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 48.2 | 101 | 111 | 80 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 2.9 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.12 | 0.96 | 1.32 | 0.49 |
| Sulphate | mg/l | -- | 500 (3) | 50 | 21 | 22 | 36 |
| Total Dissolved Solids | mg/l | -- | 500 | 1440 | 1610 | 1480 | 1440 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | 0.08 | 0.09 | 0.11 |
| Barium, dissolved | mg/l | 1 | -- | 0.4 | 0.7 | 0.53 | 0.6 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.002 | <0.002 | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | 0.65 | 0.89 | 0.9 | 1.1 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 250 | 227 | 235 | 212 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | 0.008 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | 0.0058 | 0.005 | 0.0042 |
| Copper, dissolved | mg/l | -- | 1 | 0.038 | <0.01 | 0.002 | 0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 8.08 | 33.5 | 22.7 | 42.6 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 63 | 69 | 66 | 61 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.52 | 6.3 | 5.24 | 5.73 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 88 | 126 | 152 | 129 |
| Silicon, dissolved | mg/l | -- | -- | 15.1 | 11.5 | 10.8 | 11.4 |
| Silver, dissolved | mg/l | -- | -- | 0.02 | <0.001 | <0.0001 | 0.0007 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 161 | 164 | 157 | 136 |
| Strontium, dissolved | mg/l | -- | -- | 1.32 | 1.48 | 1.22 | 1.28 |
| Sulfur, dissolved | mg/l | -- | -- | 17 | 11 | 11 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.5 | <0.001 | <0.001 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.04 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | 0.029 | 0.011 | 0.006 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | 0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- ⁽¹¹⁾ | 2850 | 2900 | 2200 |
| Temperature (Field) | deg c | -- | 15 | -- ⁽¹¹⁾ | 6.82 | 7.16 | 6.7 |
| pH (Field) | -- | -- | -- | -- ⁽¹¹⁾ | 9 | 14 | 9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-----------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 (6) | 08-Aug-2001 (6) | 03-Apr-2002 | 06-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | 1480 | 1210 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | 95.7 | 56 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 5 | 8 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | 149 | 132 |
| Chloride | mg/l | -- | 250 | -- | -- | 167 | 109 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 67.4 | 52.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | 860 | 832 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 128 | 74.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | < 0.01 | 0.18 |
| Phosphorus | mg/l | -- | -- | -- | -- | 0.63 | 2.19 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 24 | 64 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | 2010 | 1590 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.07 | 0.07 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.21 | 0.57 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.002 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 1.11 | 1.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 224 | 231 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | 0.076 | 0.049 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0079 | 0.0082 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | 0.004 | 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | 0.36 | 48.3 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 73 | 62 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | 5.62 | 5.41 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | 0.009 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 134 | 107 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 8.54 | 13.4 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | 176 | 112 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 1.01 | 1.87 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.001 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.023 | 0.019 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | 0.01 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | -- | -- | 2850 | 1950 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 6.6 | 6.8 |
| pH (Field) | -- | -- | -- | -- | -- | 8 | 15 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 13-May-2003 | 26-Aug-2003 | 26-May-2004 | 30-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1430 | 1380 | 1180 | 1340 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 79 | 77 | 48.7 | 56.7 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 9 | 8 | 7 | 11.8 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 146 | 203 | 301 | 147 |
| Chloride | mg/l | -- | 250 | 149 | 123 | 96 | 129 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 51.6 | 63.5 | 45.7 | 62.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1020 | 1040 | 727.4 | 872.8 |
| Nitrate as N | mg/l | 10 | -- | 4.6 | 0.64 | <0.2 | <0.2 |
| Nitrite as N | mg/l | 1.0 | -- | 0.23 | <0.1 | <0.2 | <0.2 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 104 | 95.9 | 49.1 | 77.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.19 | 0.06 | < 0.003 | < 0.003 |
| Phosphorus | mg/l | -- | -- | 0.36 | 0.69 | <0.05 | 0.22 |
| Sulphate | mg/l | -- | 500 (3) | 72 | 46 | 43.6 | 50.7 |
| Total Dissolved Solids | mg/l | -- | 500 | 1960 | 1830 | 1324 | 1496 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0.04 | 0.008 | 0.012 |
| Barium, dissolved | mg/l | 1 | -- | 0.5 | 0.62 | 0.554 | 0.566 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.96 | 1.26 | 1.18 | 1.24 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.001 | <0.001 | 0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 273 | 309 | 204 | 263 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.02 | <0.01 | 0.007 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.009 | 0.006 | 0.0073 | 0.0051 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | 0.0016 | 0.0015 |
| Iron, dissolved | mg/l | -- | 0.3 | 35.5 | 31.6 | 20.8 | 41.9 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.01 | <0.01 | <0.0005 | 0.0011 |
| Magnesium, dissolved | mg/l | -- | -- | 81 | 65 | 52.8 | 52.1 |
| Manganese, dissolved | mg/l | -- | 0.05 | 8.31 | 5.14 | 5.17 | 5.34 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | 0.002 | 0.001 |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | <0.005 | 0.014 | 0.009 |
| Potassium, dissolved | mg/l | -- | -- | 132 | 120 | 131 | 122 |
| Silicon, dissolved | mg/l | -- | -- | 9.7 | 8 | 8.31 | 9.76 |
| Silver, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 148 | 125 | 105 | 96.9 |
| Strontium, dissolved | mg/l | -- | -- | 2.02 | 1.7 | 1.29 | 1.3 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 8.9 | 15.9 |
| Thallium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.001 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | 0.0108 | 0.0117 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | <0.005 | 0.014 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | 0.004 | 0.005 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3100 | 3410 | 2530 | -- |
| Temperature (Field) | deg c | -- | 15 | 6.8 | 6.9 | 6.68 | -- |
| pH (Field) | -- | -- | -- | 8 | 15 | 10.4 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-2005 | 26-Aug-2005 | 03-Jun-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1320 | 1220 | 1450 | 1120 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 66.7 | 40.8 | 91.3 | 27.6 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 7 | 15 | 8 | 5 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 142 | 160 | 192 | 216 |
| Chloride | mg/l | -- | 250 | 128 | 209 | 141 | 152 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 52 | 54.7 | 61.1 | 65.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 832 | 1060 | 821 | 926 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 1.68 | 0.24 | 0.15 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 80 | 45 | 96 | 27.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.24 | 0.19 | 0.07 | 0.18 |
| Phosphorus | mg/l | -- | -- | 0.65 | 1.18 | 0.33 | 1.04 |
| Sulphate | mg/l | -- | 500 (3) | 32 | 40 | 11 | 43 |
| Total Dissolved Solids | mg/l | -- | 500 | 1780 | 1830 | 1930 | 1630 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.67 | 0.45 | 0.51 | 0.3 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 1.19 | 0.9 | 0.98 | 1.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 249 | 316 | 248 | 280 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.01 | 0.014 | 0.007 | 0.007 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0075 | 0.0066 | 0.0082 | 0.0062 |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | 0.001 | 0.003 | 0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 55.9 | 75.8 | 53.5 | 49.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 51 | 65 | 49 | 55 |
| Manganese, dissolved | mg/l | -- | 0.05 | 6.4 | 11.1 | 7.3 | 11.6 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | 0.014 | 0.018 | 0.015 | 0.014 |
| Potassium, dissolved | mg/l | -- | -- | 108 | 71 | 121 | 46 |
| Silicon, dissolved | mg/l | -- | -- | 12.2 | 17.3 | 10.9 | 17.3 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 98 | 98 | 106 | 122 |
| Strontium, dissolved | mg/l | -- | -- | 1.55 | 1.8 | 1.53 | 1.47 |
| Sulfur, dissolved | mg/l | -- | -- | 10.7 | 13.3 | 3.7 | 14.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.17 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.025 | 0.032 | 0.013 | 0.017 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | 0.03 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.002 | 0.002 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2740 | 2350 | 3665 | 2515 |
| Temperature (Field) | deg c | -- | 15 | 6.4 | 7 | 6.8 | 6.6 |
| pH (Field) | -- | -- | -- | 10 | 17.9 | 10 | 16 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 29-May-2007 | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1370 | 1070 | 1430 | 1310 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 65.4 | 32.1 | 93.3 | 60.4 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8 | 5 | 14 | 29 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 150 | 136 | 148 | 149 |
| Chloride | mg/l | -- | 250 | 3 | 125 | 127 | 125 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 57.9 | 51.7 | 57.3 | 56.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 903 | 876 | 911 | 818 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 79.8 | 34.3 | 105 | 61.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | 0.15 | < 0.01 | 0.01 |
| Phosphorus | mg/l | -- | -- | 1.25 | 1.35 | 1.11 | 1.42 |
| Sulphate | mg/l | -- | 500 (3) | 36 | 66 | 20 | 36 |
| Total Dissolved Solids | mg/l | -- | 500 | 1810 | 1540 | 1930 | 1740 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.01 | <0.01 | 0.02 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.52 | 0.36 | 0.54 | 0.48 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 1.29 | 1.14 | 1.3 | 1.21 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | 0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 266 | 265 | 271 | 240 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0091 | 0.0066 | 0.0116 | 0.0067 |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | <0.001 | 0.001 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 50.3 | 45.5 | 51.5 | 47 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 58 | 52 | 57 | 53 |
| Manganese, dissolved | mg/l | -- | 0.05 | 8.18 | 9.81 | 5.36 | 6.88 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | 0.019 | 0.011 | 0.015 | 0.011 |
| Potassium, dissolved | mg/l | -- | -- | 89 | 54 | 121 | 82 |
| Silicon, dissolved | mg/l | -- | -- | 14.4 | 16.5 | 12 | 18 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 127 | 108 | 141 | 102 |
| Strontium, dissolved | mg/l | -- | -- | 1.85 | 1.6 | 1.55 | 1.29 |
| Sulfur, dissolved | mg/l | -- | -- | 12 | 22 | 7 | 12 |
| Thallium, dissolved | mg/l | -- | -- | 0.0003 | <0.0001 | <0.0001 | <0.0001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.022 | 0.039 | 0.06 | 0.042 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | 0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 2150 | 1950 | 2200 | 2500 |
| Temperature (Field) | deg c | -- | 15 | 7 | 6.8 | 6.7 | 6.9 |
| pH (Field) | -- | -- | -- | 14.3 | 16.2 | 7.5 | 18 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|---------------------------------|---------------------|--------------|------------------|------------------|------------------|
| | | | | 14-Apr-2009 | 14-Aug-2009 (23) | 31-May-2010 (24) | 12-Aug-2010 (25) |
| | | | | P-5B-91 | 5B-91 | M-3 | R-5 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1390 | 1270 | 1380 | 1610 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 120 (38) | 60 (38) | 80 | 98 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 9 | 9 | 10 | 10 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 160 | 170 | 190 | 220 |
| Chloride | mg/l | -- | 250 | 130 | 260 | 140 | 120 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 65.2 | 48.8 | 63 | 69 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 790 | 940 | 950 | 1100 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | 0.02 | <0.01 | <0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 110 (38) | 57 (38) | 89 | 99 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.66 | 0.82 (14) | 0.66 | 0.6 |
| Sulphate | mg/l | -- | 500 (3) | <1 | <1 | <1 | <1 |
| Total Dissolved Solids | mg/l | -- | 500 | 1800 | 1730 | 1900 | 2100 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.013 | 0.008 | 0.008 | 0.007 |
| Barium, dissolved | mg/l | 1 | -- | 0.70 | 0.49 | 0.59 | 0.65 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 1.2 | 1.2 | 1.4 | 1.2 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 220 | 270 | 280 | 310 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.005 | 0.007 |
| Cobalt, dissolved | mg/l | -- | -- | 0.010 | 0.0056 | 0.0071 | 0.0058 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | 0.001 | <0.001 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 59 | 61 | 72 | 69 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 56 | 66 | 63 | 73 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.2 | 8.1 | 7.1 | 8.4 |
| Mercury | mg/l | -- | -- | -- (21) | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0015 (21) | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.001 | <0.001 | <0.001 | 0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.011 | 0.007 | 0.010 | 0.009 |
| Potassium, dissolved | mg/l | -- | -- | 140 | 82 | 97 | 99 |
| Silicon, dissolved | mg/l | -- | -- | 10 | 14 | 15 | 13 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 140 | 130 | 140 | 140 |
| Strontium, dissolved | mg/l | -- | -- | 1.4 | 1.5 | 1.5 | 1.7 |
| Sulfur, dissolved | mg/l | -- | -- | 6.0 | 13.0 | 14.0 | 11.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.011 | 0.009 | 0.009 | 0.011 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | <0.005 | 0.008 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.001 | 0.002 | 0.002 | 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2800 | 2359 | 2992 | -- |
| Temperature (Field) | deg c | -- | 15 | 7.8 | 6.38 | 6.53 | -- |
| pH (Field) | -- | -- | -- | 8 | 17.4 | 12.6 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|------------------|------------------|------------------|-----------------|
| | | ODWQS(169 | ODWQS- | 02-May-2011 (26) | 23-Aug-2011 (26) | 04-Jun-2012 (24) | 29-Aug-2012 (2) |
| | | /03)-Health | AO | SV-1 | P5B-91 | 5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1210 | 1130 | 1300 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.06 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 95 (28) | 48 | 89 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 9 | 9 | 11 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 170 | 170 | 160 | -- |
| Chloride | mg/l | -- | 250 | 150 | 160 | 60 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 48.8 | 53.8 | 55 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 570 | 950 | 710 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.04 | 0.09 | <0.010 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 85 (28) | 48 | 95 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | 0.2 | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | -- |
| Phosphorus | mg/l | -- | -- | 0.54 | 0.59 | 0.41 | -- |
| Sulphate | mg/l | -- | 500 (3) | <1 | 35 | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1680 | 1740 | 1250 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.006 | 0.007 | 0.016 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.43 | 0.45 | 0.51 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.1 | 1.2 | 1.2 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.00010 | -- |
| Calcium, dissolved | mg/l | -- | -- | 160 | 260 | 210 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0053 | 0.0065 | 0.0070 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.001 | 0.001 | <0.0010 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 20 | 56 | 57 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.0005 | <0.00050 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 39 | 69 | 43 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.3 | 8.1 | 4.3 | -- |
| Mercury | mg/l | -- | -- | -- | -- | <0.0001 | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | 0.0005 | 0.00081 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.011 | 0.011 | 0.0066 | -- |
| Potassium, dissolved | mg/l | -- | -- | 120 | 71 | 110 | -- |
| Silicon, dissolved | mg/l | -- | -- | 7.8 | 13 | 9.7 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 110 | 120 | 94 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.94 | 1.4 | 1.3 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 5.8 | 19.1 | <5 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.0050 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.004 | 0.0068 | 0.011 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | 0.011 | <0.0050 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | 0.0085 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2619 | 2254 | 2366 | -- |
| Temperature (Field) | deg c | -- | 15 | 6.70 | 6.59 | 6.67 | -- |
| pH (Field) | -- | -- | -- | 9.5 | 17.4 | 11.6 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|-------------|-----------------|------------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Apr-2013 | 06-Sep-2013 (2) | 12-May-2014 (27) | 26-Aug-2014 |
| | | /03)-Health | AO | SV-1 | P5B-91 | P5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1200 | 1400 | 1400 | 1300 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 110 (38) | 65 | 95 | 71 (38) |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8.0 | 4.0 | 8.0 | 3.0 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 130 | 190 | 150 | 180 |
| Chloride | mg/l | -- | 250 | 86 | 95 | 78 | 130 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 45 | 63 | 56 | 57 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 630 | 850 | 810 | 860 |
| Nitrate as N | mg/l | 10 | -- | 12 | <0.10 | 3.48 | 0.51 |
| Nitrite as N | mg/l | 1.0 | -- | 0.69 | 0.17 | 0.210 | 0.160 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 100 (39) | 73 | 95 | 65 (39) |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 13 | 0.23 | 3.69 | 0.67 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | <0.010 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.15 | 5.2 | 1.3 | 1.2 |
| Sulphate | mg/l | -- | 500 (3) | <1 | <1 | <1 | <1 |
| Total Dissolved Solids | mg/l | -- | 500 | 1140 | 1490 | 1320 | 1490 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.0077 | 0.0085 | 0.008 | 0.0092 |
| Barium, dissolved | mg/l | 1 | -- | 0.47 | 0.54 | 0.46 | 0.44 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | <0.00050 | <0.0005 | <0.00050 |
| Boron, dissolved | mg/l | 5 | -- | 1.2 | 1.4 | 1.2 | 1.5 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | <0.00010 | 0.0001 | <0.00010 |
| Calcium, dissolved | mg/l | -- | -- | 190 | 260 | 240 | 260 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.0075 | 0.0051 | <0.03 | <0.0050 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0042 | 0.0044 | 0.0063 | 0.0049 |
| Copper, dissolved | mg/l | -- | 1 | 0.0027 | <0.0010 | 0.001 | 0.0020 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.96 | 49 | 42 | 50 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | <0.00050 | <0.0005 | <0.00050 |
| Magnesium, dissolved | mg/l | -- | -- | 39 | 52 | 52 | 54 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.2 | 5.7 | 5.8 | 6.1 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.00090 | 0.00071 | 0.0007 | 0.00099 |
| Nickel, dissolved | mg/l | -- | -- | 0.0086 | 0.0046 | 0.009 | 0.0081 |
| Potassium, dissolved | mg/l | -- | -- | 120 | 89 | 98 | 76 |
| Silicon, dissolved | mg/l | -- | -- | 5.9 | 11 | 9.8 | 12 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | <0.00010 | <0.0001 | <0.00010 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 110 | 120 | 120 | 140 |
| Strontium, dissolved | mg/l | -- | -- | 0.93 | 1.4 | 1.3 | 1.4 |
| Sulfur, dissolved | mg/l | -- | -- | 1.7 | 4.8 | 1.9 | 7.0 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | <0.000050 | <0.00005 | <0.000050 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | <0.0050 | <0.005 | <0.0050 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0026 | 0.0081 | 0.0086 | 0.0082 |
| Zinc, dissolved | mg/l | -- | 5 | 0.0051 | <0.0050 | <0.005 | 0.0097 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.0059 | <0.0010 | 0.0074 | 0.0095 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2412 | 2352 | 2374 | 2789 |
| Temperature (Field) | deg c | -- | 15 | 6.73 | 6.70 | 6.72 | 6.85 |
| pH (Field) | -- | -- | -- | 9.5 | 15.3 | 12.9 | 15.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|-------------|-----------------|--------------|-------------|
| | | ODWQS(169 | ODWQS- | 20-May-2015 | 18-Aug-2015 (2) | 16-June-2016 | 22-Aug-2016 |
| | | /03)-Health | AO | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1200 | 1500 | 1580 | 1430 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 90 | 94 (36) | 87.3 | 73 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 13 | 23 | 24 | 11 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 150 | 200 | 244 | 234 |
| Chloride | mg/l | -- | 250 | 68 | 90 | 132 | 130 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 42 | 50 | 64.1 | 72.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 650 | 870 | 826 | 953 |
| Nitrate as N | mg/l | 10 | -- | 0.37 | 0.12 | 0.2 | 0.1 |
| Nitrite as N | mg/l | 1.0 | -- | 0.189 | 0.089 | 0.6 | < 0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 100 | 90 (36) | 104 | 84.7 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.56 | 0.21 | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | 0.02 | 0.01 |
| Phosphorus | mg/l | -- | -- | 1.4 | 1.5 | 1.35 | 0.94 |
| Sulphate | mg/l | -- | 500 (3) | < 1 | < 0.1 | 11 | 11 |
| Total Dissolved Solids | mg/l | -- | 500 | 1420 | 1460 | 1897 | 2130 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.006 | 0.0082 | 0.07 | 0.08 |
| Barium, dissolved | mg/l | 1 | -- | 0.38 | 0.45 | 0.512 | 0.44 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.2 | 1.6 | 1.77 | 1.84 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.00010 | 0.00006 | < 0.00002 |
| Calcium, dissolved | mg/l | -- | -- | 200 | 280 | 255 | 288 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.0050 | 0.003 | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0058 | 0.0038 | 0.0041 | 0.0036 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | <0.0010 | < 0.002 | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 36 | 62 | 39.1 | 53.3 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.00050 | < 0.00002 | 0.00003 |
| Magnesium, dissolved | mg/l | -- | -- | 38 | 44 | 45.9 | 56.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.4 | 4.8 | 5.25 | 6.2 |
| Mercury | mg/l | -- | -- | -- | <0.0001 | < 0.00002 | < 0.00002 |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0005 | 0.00058 | 0.0016 | 0.0006 |
| Nickel, dissolved | mg/l | -- | -- | 0.006 | 0.0042 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 86 | 92 | 87.2 | 75.4 |
| Silicon, dissolved | mg/l | -- | -- | 8.3 | 10 | 11.2 | 12.3 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.00010 | 0.00002 | < 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 79 | 110 | 163 | 170 |
| Strontium, dissolved | mg/l | -- | -- | 1.2 | 1.4 | 1.48 | 1.61 |
| Sulfur, dissolved | mg/l | -- | -- | 2.2 | 4.2 | 6.7 | 6.6 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.000050 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.0050 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0051 | 0.0088 | 0.0128 | 0.0156 |
| Zinc, dissolved | mg/l | -- | 5 | 0.028 | <0.0050 | 0.008 | 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | <0.0020 (36) | < 0.001 | 0.004 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2408 | 2396 | 2780 | 3180 |
| Temperature (Field) | deg c | -- | 15 | 6.70 | 6.66 | 13.1 | 14.5 |
| pH (Field) | -- | -- | -- | 11.9 | 12.9 | 6.5 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | | | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1200 | 1270 | 1240 | 1470 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 85.9 | 81.7 | 90.1 | 74.1 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | 14 | 6 | 6 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 137 | 197 | 187 | 294 |
| Chloride | mg/l | -- | 250 | 57.6 | 77 | 63.7 | 11.2 |
| Conductivity | µmho/c | -- | -- | -- | 2400 | 1870 | 2410 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 40.8 | 64.1 | 54.1 | 56 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 727 | 838 | 647 | 853 |
| Nitrate as N | mg/l | 10 | -- | 9.39 | < 0.05 | 0.33 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | 0.14 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 89.2 | 93.7 | 103 | 124 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 1.42 | 1.64 | 0.4 | 20.6 |
| Sulphate | mg/l | -- | 500 (3) | 3 | 13 | 11 | 2 |
| Total Dissolved Solids | mg/l | -- | 500 | 1400 | 1394 | 1316 | 1599 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.07 | 0.12 | 0.1 | 0.12 |
| Barium, dissolved | mg/l | 1 | -- | 0.433 | 0.632 | 0.472 | 0.515 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.42 | 1.78 | 1.34 | 1.77 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000048 | < 0.000014 | 0.000036 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 223 | 260 | 199 | 258 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.003 | 0.004 | 0.002 | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0036 | 0.009 | 0.0047 | 0.0044 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | < 0.002 | 0.0011 | 0.0003 |
| Iron, dissolved | mg/l | -- | 0.3 | 45.5 | 70.2 | 48.7 | 57.2 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | 0.00005 | 0.00008 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 41 | 45.7 | 36.3 | 50.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.55 | 4.81 | 3.38 | 5.2 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0007 | 0.0006 | 0.0004 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 84.7 | 104 | 98.9 | 86 |
| Silicon, dissolved | mg/l | -- | -- | 9.33 | 12.1 | 8.96 | 11 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 105 | 123 | 110 | 153 |
| Strontium, dissolved | mg/l | -- | -- | 1.32 | 1.5 | 1.2 | 1.43 |
| Sulfur, dissolved | mg/l | -- | -- | 4.3 | 6.9 | 5.8 | 11.4 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0183 | 0.013 | 0.0061 | 0.0093 |
| Zinc, dissolved | mg/l | -- | 5 | 0.005 | 0.005 | < 0.005 | 0.009 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | 0.02 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 2200 | 2220 | 1863 | 1470 |
| Temperature (Field) | deg c | -- | 15 | 8.7 | 14.1 | 6.6 | 14.8 |
| pH (Field) | -- | -- | -- | 6.7 | 6.7 | 8.2 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|---------------|--------------|-----------------|------------|
| | | ODWQS(169 | ODWQS- | 25-April-2019 | 26-Sept-2019 | 27-May-2020 (6) | 5-Nov-2020 |
| | | /03)-Health | AO | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 745 | 1170 | -- | 956 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 75.9 | 83.7 | -- | 112 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | 46 | -- | 7 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 115 | 234 | -- | 308 |
| Chloride | mg/l | -- | 250 | 33.2 | 105 | -- | 41.9 |
| Conductivity | µmho/c | -- | -- | 1562 | 2234 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 45.3 | 54.9 | -- | 49.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 426 | 660 | -- | 413 |
| Nitrate as N | mg/l | 10 | -- | 0.08 | < 0.5 | -- | 0.06 |
| Nitrite as N | mg/l | 1.0 | -- | <0.5 | < 0.5 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 80.8 | 101 | -- | 125 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 2.41 | 1.8 | -- | 0.02 |
| Phosphorus | mg/l | -- | -- | 10 | 2.6 | -- | 6.3 |
| Sulphate | mg/l | -- | 500 (3) | 6 | -- | -- | 3 |
| Total Dissolved Solids | mg/l | -- | 500 | 913 | 1334 | -- | 922 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.07 | 0.09 | -- | 0.08 |
| Barium, dissolved | mg/l | 1 | -- | 0.306 | 0.422 | -- | 0.141 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.902 | 1.41 | -- | 1.22 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000029 | -- | < 0.000029 |
| Calcium, dissolved | mg/l | -- | -- | 132 | 207 | -- | 114 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.003 | 0.003 | -- | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0064 | 0.005 | -- | 0.0023 |
| Copper, dissolved | mg/l | -- | 1 | 0.0022 | 0.0008 | -- | 0.0014 |
| Iron, dissolved | mg/l | -- | 0.3 | 40.2 | 47.9 | -- | 0.026 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00019 | < 0.00009 | -- | 0.00014 |
| Magnesium, dissolved | mg/l | -- | -- | 23.3 | 34.6 | -- | 31.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.83 | 3.52 | -- | 1.4 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0004 | 0.0004 | -- | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | 0.0075 | < 0.01 | -- | 0.0094 |
| Potassium, dissolved | mg/l | -- | -- | 75.6 | 98.7 | -- | 91.8 |
| Silicon, dissolved | mg/l | -- | -- | 5.76 | 9.87 | -- | 8.34 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | 0.0003 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 55.7 | 77.1 | -- | 64.6 |
| Strontium, dissolved | mg/l | -- | -- | 0.823 | 1.27 | -- | 0.852 |
| Sulfur, dissolved | mg/l | -- | -- | 3.1 | 4.2 | -- | 3.1 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | -- | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | -- | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0064 | 0.0066 | -- | 0.0077 |
| Zinc, dissolved | mg/l | -- | 5 | 0.016 | < 0.005 | -- | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 | -- | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1883 | 1114 | -- | 1856 |
| Temperature (Field) | deg c | -- | 15 | 6.8 | 14.5 | -- | 10.4 |
| pH (Field) | -- | -- | -- | 6.0 | 7.5 | -- | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|-----------------|----------------|-----------------|
| | | ODWQS(169 | ODWQS- | 27-May-2021 (6) | 18-Aug-21 (2B) | 10-Nov-2021 (6) |
| | | /03)-Health | AO | PB5-90 | PB5-90 | PB5-90 |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- |
| Metals | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- |
| pH (Field) | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|----------------------------------|--------|-------------|---------|-------------|-------------|------------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 | 28-Oct-2022 | 05-May-23 | 16-Aug-23 |
| | | /03)-Health | AO | PB5-90 | PB5-90 | P5B-91 | P5B-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 865 | 1060 | 694 | 1070 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 91.5 | 99.7 | 54.4 | 95.9 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 13 | 14 | 5 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 253 | 167 | 81 | 141 |
| Chloride | mg/l | -- | 250 | 41.4 | 35.2 | 29.2 | 53.2 |
| Conductivity | µmho/c | -- | -- | 0 | 2083 | 1364 | 0.87 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.5 | 9 | 13.4 | 10.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 598 | 717 | 395 | 613 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 0.15 | 2.08 | <0.40 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.1 | 0.22 | <0.40 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 100 | 95.6 | 58.7 | 95.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.008 | 0.014 | 0.02 | 0.003 |
| Phosphorus | mg/l | -- | -- | 3.77 | 1.17 | 0.78 | 0.43 |
| Sulphate | mg/l | -- | 500 (3) | 2 | < 2 | 2 | 4 |
| Total Dissolved Solids | mg/l | -- | 500 | 935 | 1298 | 811 | 1190 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | 0.11 | 0.07 | 0.08 |
| Barium, dissolved | mg/l | 1 | -- | 0.488 | 0.485 | 0.323 | 0.462 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.29 | 1.43 | 1.04 | 1.51 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000029 | < 0.000012 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 192 | 234 | 129 | 195 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.003 | 0.002 | 0.003 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0047 | 0.0037 | 0.0028 | 0.0063 |
| Copper, dissolved | mg/l | -- | 1 | 0.0011 | 0.001 | 0.0023 | 0.0012 |
| Iron, dissolved | mg/l | -- | 0.3 | 62.1 | 77.5 | 35.1 | 76.1 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00006 | 0.00013 | 0.00005 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 29 | 32.2 | 17.7 | 30.5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 3.23 | 3.2 | 2.21 | 2.97 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0003 | 0.0004 | 0.0002 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | 0.004 | < 0.01 | < 0.01 | 0.0059 |
| Potassium, dissolved | mg/l | -- | -- | 88.1 | 85 | 64.0 | 85.3 |
| Silicon, dissolved | mg/l | -- | -- | 10.2 | 7.64 | 6.34 | 9.97 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 60.8 | 67 | 45.4 | 82.4 |
| Strontium, dissolved | mg/l | -- | -- | 1.23 | 1.29 | 0.802 | 1.15 |
| Sulfur, dissolved | mg/l | -- | -- | 4.4 | 4.4 | 3.6 | 4.67 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0061 | 0.0083 | 0.0042 | 0.0082 |
| Zinc, dissolved | mg/l | -- | 5 | 0.007 | 0.006 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1970 | 1920 | 1346 | 1866 |
| Temperature (Field) | deg c | -- | 15 | 11.4 | 12.3 | 10.2 | 15.6 |
| pH (Field) | -- | -- | -- | 7.2 | 6.6 | 6.58 | 6.68 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 09-Aug-1991 | 04-Dec-1991 | 30-Apr-1992 | 07-Sep-1992 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 125 | 262 | 244 | 202 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | -- | <0.1 | <0.1 |
| Bicarbonate | mg/l | -- | -- | 153 | 319 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 2 | 2 |
| Bromide | mg/l | -- | -- | -- | -- | 0.7 | 1.3 |
| Carbonate (CO3) | mg/l | -- | -- | <1 | <1 | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 148 | 744 | 11 | 20 |
| Chloride | mg/l | -- | 250 | 14 | 36 | 41 | 43 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.7 | 7.3 | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | 0.07 | 0.08 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 358 | 250 | 310 | 242 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 4.4 | 1.77 | <0.1 | 0.15 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 4.4 | -- | <0.1 | 0.15 |
| Phosphate | mg/l | -- | -- | -- | -- | 0.2 | 0.18 |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 4.3 | 1.44 | <0.1 | <0.1 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | 27 | 38 | 62 | 30 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 228 | 316 | 410 | 370 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | 7.2 | 5.8 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.07 | 0.17 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.06 | 0.06 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.18 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 60 | 57 | 65 | 51 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | 0.02 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | 0.28 | <0.05 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.75 | 2.9 | 5.54 | 6.84 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.14 | 0.23 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 50 | 26 | 36 | 28 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.05 | 0.39 | 0.37 | 0.42 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.1 | <0.1 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | 0.15 | <0.05 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 18 | 4 | 3 | 3 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 5.8 | 10.1 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 ^(a) | 26 | 32 | 36 | 33 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 0.29 | 0.33 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 15 | 12 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | 0.41 | 0.06 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | <0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 360 | 567 | 953 | 650 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 6 | 8 |
| pH (Field) | - | -- | -- | 6.9 | 6.22 | 6.7 | 6.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-Nov-1992 | 05-May-1993 | 10-Nov-1993 | 03-Jun-1994 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 46 | 290 | 98 | 280 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | -- | -- | -- |
| Bromide | mg/l | -- | -- | 0.9 | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | 26 | 18 | 28 |
| Chloride | mg/l | -- | 250 | 33 | 57 | 43 | 82 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 7.8 | 5.3 | 9.1 |
| Fluoride | mg/l | 1.5 | -- | 0.07 | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 103 | 320 | 127 | 313 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.13 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.13 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 0.21 | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | 60 | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 220 | 450 | 230 | 450 |
| Total Organic Carbon | mg/l | -- | -- | 3.7 | 8.9 | 6.3 | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | 0.76 | <0.03 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.07 | 0.04 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.15 | 0.12 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | -- |
| Calcium, dissolved | mg/l | -- | -- | 20 | 74 | 28 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 5.61 | 5.21 | 4.46 | 4.88 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 13 | 33 | 14 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.37 | 0.36 | 0.38 | 0.29 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | 2 | 3 | 2 | -- |
| Silicon, dissolved | mg/l | -- | -- | 7.7 | 2.2 | 5.2 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(a) | 17 | 31 | 22 | 22 |
| Strontium, dissolved | mg/l | -- | -- | 0.19 | 0.3 | 0.22 | 0.38 |
| Sulfur, dissolved | mg/l | -- | -- | 21 | 11 | 12 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | 0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 290 | 600 | 330 | 700 |
| Temperature (Field) | deg c | -- | 15 | 8 | 6 | 6 | 7.5 |
| pH (Field) | - | -- | -- | 5.6 | 6.1 | 6.5 | 6.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 09-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 | 11-Sep-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 243 | -- | 168 | 230 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 25 | -- | 20 | 38 |
| Chloride | mg/l | -- | 250 | 70 | -- | 62 | 88 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.9 | -- | 7.7 | 10.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 289 | -- | 236 | 319 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (8) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 420 | -- | 340 | 468 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 4.76 | -- | 6.09 | 5.13 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.27 | -- | 0.34 | 0.32 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 24 | -- | 26 | 34 |
| Strontium, dissolved | mg/l | -- | -- | 0.343 | -- | 0.312 | 0.471 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 625 | -- | 400 | 700 |
| Temperature (Field) | deg c | -- | 15 | 12 | -- | 10 | 12 |
| pH (Field) | - | -- | -- | 6.3 | -- | 6.2 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Nov-1995 (7) | 17-Jul-1996 | 21-Nov-1996 | 10-Jun-1997 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 62 | 271 | 311 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 21 | 52 | 47 |
| Chloride | mg/l | -- | 250 | -- | 12 | 119 | 109 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 6.2 | 13.9 | 17.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 59 | 269 | 384 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (8) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 104 | 556 | 680 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 91 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 1.21 | 8.15 | 2.65 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 38 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.05 | 0.64 | 0.19 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 15 | 87 | 42 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.072 | 0.562 | 0.465 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 110 | 570 | 620 |
| Temperature (Field) | deg c | -- | 15 | -- | 8 | 6.5 | 3 |
| pH (Field) | - | -- | -- | -- | 8 | 6.8 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1997 | 11-Jun-1998 | 19-Aug-1998 | 26-May-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 217 | 438 | 398 | 406 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 31 | 42 | 59 | 55 |
| Chloride | mg/l | -- | 250 | 81 | 120 | 138 | 100 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 11.3 | 18 | 21 | 22.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 284 | 520 | 478 | 428 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 448 | 704 | 716 | 588 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 2.99 | 4.3 | 4.71 | 3.56 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.2 | 0.32 | 0.34 | 0.29 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 35 | 70 | 74 | 60 |
| Strontium, dissolved | mg/l | -- | -- | 0.38 | 0.515 | 0.649 | 0.523 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 600 | 880 | 1350 | 880 |
| Temperature (Field) | deg c | -- | 15 | 12 | 10 | 9 | 4 |
| pH (Field) | - | -- | -- | 6.5 | 7.1 | 6.9 | 6.72 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 31-Aug-1999 | 31-May-2000 | 18-Aug-2000 | 28-May-2001 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 370 | 425 | 420 | 165 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 0.08 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 50 | 43 | 50 | -- |
| Chloride | mg/l | -- | 250 | 101 | 95 | 82 | 399 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 18.4 | 19.7 | 17.9 | 5.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 401 | 432 | 407 | 561 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 0.21 | 0.02 | 1.23 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 560 | 604 | 660 | 1080 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.18 | 0.2 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.19 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 102 | 92 | 124 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.09 | 3.22 | 2.47 | 7.34 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 43 | 43 | 61 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.23 | 0.28 | 0.21 | 0.87 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 71 | 72 | 71 | 67 |
| Strontium, dissolved | mg/l | -- | -- | 0.488 | 0.516 | 0.355 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 500 | 520 | 996 | 700 |
| Temperature (Field) | deg c | -- | 15 | 8 | 8 | 11.2 | 8.5 |
| pH (Field) | - | -- | -- | 6.58 | 6.78 | 7 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Aug-2001 | 03-Apr-2002 | 06-Aug-2002 | 13-May-2003 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 384 | 536 | 464 | 463 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.65 | 0.13 | 0.19 | 0.09 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | 44 |
| Chloride | mg/l | -- | 250 | 289 | 302 | 767 | 553 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.9 | 15.1 | 16.5 | 15.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 575 | 671 | 1250 | 840 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | 1.14 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.43 | 0.26 | 0.16 | 0.47 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.01 | 0.02 | 0.11 | 0.07 |
| Sulphate | mg/l | -- | 500 ^(b) | -- | -- | -- | 164 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1100 | 1260 | 2060 | 1710 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.01 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | 0.17 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.32 | 0.43 | 0.34 | 0.39 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | <0.001 |
| Calcium, dissolved | mg/l | -- | -- | 138 | 140 | 283 | 170 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.002 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 5.43 | 5.87 | 6.76 | 8.66 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | <0.01 |
| Magnesium, dissolved | mg/l | -- | -- | 56 | 78 | 131 | 101 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.52 | 0.88 | 1.16 | 1.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | 5 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 5.1 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 91 | 141 | 205 | 255 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.747 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1570 | 1700 | 1840 | 1450 |
| Temperature (Field) | deg c | -- | 15 | 15 | 5 | 14 | 7 |
| pH (Field) | - | -- | -- | 6.67 | 6.2 | 6.7 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-Aug-2003 | 26-May-2004 | 30-Aug-2004 | 26-May-2005 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 403 | 600 | 735 | 1090 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | 0.09 | 0.13 | 0.16 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2 | 2.7 | 5.8 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 40 | 67 | 71 | -- |
| Chloride | mg/l | -- | 250 | 662 | 293 | 219 | 270 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.3 | 18.5 | 28 | 247 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 726 | 577.4 | 589.7 | 1160 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.2 | <0.2 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.2 | <0.2 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.68 | 1.17 | 1.5 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.59 | <0.05 | 0.08 | 0.31 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | 0.06 | 0.04 | <0.003 | 0.09 |
| Sulphate | mg/l | -- | 500 ^(b) | 83 | 62.9 | 42.5 | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1740 | 1170 | 1112 | 1720 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | 0.012 | 0.01 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.13 | 0.155 | 0.122 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.38 | 0.347 | 0.524 | 0.44 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.001 | <0.0001 | <0.0001 | -- |
| Calcium, dissolved | mg/l | -- | -- | 154 | 117 | 120 | 267 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.005 | <0.005 | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.002 | 0.0005 | 0.0006 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.0005 | <0.0005 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 7.91 | 8.24 | 7.6 | 15.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.01 | <0.0005 | 0.0009 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 83 | 68.7 | 69.9 | 121 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.836 | 0.722 | 0.654 | 1.19 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0002 | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.001 | <0.001 | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | 0.006 | 0.008 | -- |
| Potassium, dissolved | mg/l | -- | -- | 5 | 4.5 | 4.7 | -- |
| Silicon, dissolved | mg/l | -- | -- | 5.5 | 5 | 6.34 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.001 | <0.0001 | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 259 | 197 | 212 | 190 |
| Strontium, dissolved | mg/l | -- | -- | 0.655 | 0.754 | 0.693 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 27.3 | 29.5 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.01 | <0.00005 | <0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | <0.001 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.005 | <0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | 0.0049 | 0.006 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | 0.009 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | 0.001 | 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1540 | 1940 | -- | 2650 |
| Temperature (Field) | deg c | -- | 15 | 12 | 8.2 | -- | 8 |
| pH (Field) | - | -- | -- | 6.8 | 6.78 | -- | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 | 29-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1480 | 2150 | 2240 | 2460 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.19 | 0.16 | 0.17 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 378 | 523 | 442 | 498 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 768 | 280 | 581 | 636 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1790 | 1780 | 2080 | 2170 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.21 | 0.18 | 0.2 | 0.6 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | 0.21 | 0.1 | 0.12 | 0.06 |
| Sulphate | mg/l | -- | 500 ^(b) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 2520 | 3040 | 3130 | 3340 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.94 | 1 | 1.2 | 2.73 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 418 | 465 | 561 | 618 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 21.3 | 22.4 | 24.7 | 42.9 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 181 | 151 | 166 | 153 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.03 | 5.9 | 12.2 | 14.4 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 322 | 331 | 349 | 276 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3100 | 3950 | 2710 | 3450 |
| Temperature (Field) | deg c | -- | 15 | 18.3 | 13 | 15 | 10.4 |
| pH (Field) | - | -- | -- | 6.2 | 7.3 | 6.6 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-Aug-2007 | 01-May-2008 | 06-Aug-2008 | 15-Apr-2009 P-6-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2770 | 2190 | 1990 | 1870 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.75 | 1.45 | 1.93 | 1.3 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 497 | 472 | 401 | 360 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 128 | 142 | 124 | 125 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 2060 | 1900 | 1370 | 1700 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.3 | 0.51 | 0.58 | 1.7 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | 0.13 | <0.01 | 0.02 | <0.01 |
| Sulphate | mg/l | -- | 500 ^(b) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 3220 | 3070 | 2780 | 2500 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 2.5 | 5.2 | 4.3 | 4.33 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 571 | 500 | 369 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 45.8 | 40.8 | 28.4 | 29.5 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 153 | 159 | 108 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 13.6 | 9.6 | 7.08 | 7.10 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 327 | 420 | 431 | 365 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3000 | 3200 | 3700 | 3500 |
| Temperature (Field) | deg c | -- | 15 | 12.9 | 7 | 16 | 6 |
| pH (Field) | - | -- | -- | 7.4 | 6.8 | 6.9 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|---------------------|----------------------|------------------|------------------|------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 14-Aug-2009 (93) | 31-May-2010 (94) | 12-Aug-2010 (26) | 29-Apr-2011 (26) |
| | | | | 6-91 | M-4 | C-9 | V-1 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1850 | 1720 | 1810 | 1510 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.3 | 1.8 | 1.2 | 3.1 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 310 | 340 | 250 | 260 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 106 | 123 | 109 | 88.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1300 | 1500 | 1500 | 1300 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.2 ⁽⁹⁵⁾ | 1.7 | 0.41 | 1.2 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.1 ⁽⁹²⁾ | <0.01 | <0.01 | <0.01 |
| Sulphate | mg/l | -- | 500 ⁽⁹¹⁾ | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 2430 | 2400 | 2400 | 1860 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 6.64 | 4.25 | 11.3 | 3.26 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 23.4 | 22.0 | 22.1 | 12.7 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.27 | 9.77 | 10.2 | 9.23 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴¹⁾ | 395 | 387 | 376 | 239 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3224 | 3744 | 3219 | 2955 |
| Temperature (Field) | deg c | -- | 15 | 18.6 | 10.9 | 15.7 | 7.3 |
| pH (Field) | - | -- | -- | 6.52 | 6.60 | 6.69 | 6.72 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|----------|---------------------------|--------------------------|--------------------------|---------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 23-Aug-2011 (26) P6-91 | 04-Jun-2012 (24) 6-91 | 29-Aug-2012 (25) 6-91 | 23-Apr-2013 RV-1 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1280 | 1000 | 1600 | 1500 |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 11 | 21 | 56 | 29 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 170 | 190 | 200 | 290 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 71.5 | 78 | 110 | 100 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1000 | 790 | 1200 | 1500 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.0 | 0.85 | 0.62 | 0.89 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.01 | <0.010 | <0.010 | <0.010 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1930 | 1610 | 2150 | 2270 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 7.84 | 3.9 | 10.0 | 3.88 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 15.0 | 9.8 | 10.3 | 9.56 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 9.43 | 6.2 | 8.4 | 12.8 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 234 | 220 | 268 | 257 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2267 | 2164 | 3342 | 3054 |
| Temperature (Field) | deg c | -- | 15 | 14.6 | 9.9 | 14.9 | 8.4 |
| pH (Field) | - | -- | -- | 6.67 | 6.83 | 6.80 | 6.84 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|----------|------------------|-------------|------------------|------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 06-Sep-2013 (36) | 12-May-2014 | 27-Aug-2014 (26) | 20-May-2015 (37) |
| | | | | P6-91 | P6-91 | P6-91 | P-6 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2000 | 1900 | 1700 | 1700 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 16 | 61 | 52 | 52 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 390 | 430 | 360 | 390 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 360 | 120 | 100 | 120 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1800 | 1300 | 1300 | 1300 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.63 | 0.88 | 0.74 | 0.42 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 3730 | 2530 | 2540 | 2700 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 3.9 | 4.2 | 2.5 | 4.0 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 6.2 | 6.4 | 4.4 | 3.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 13.7 | 8.5 | 9.5 | 8.9 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 306 | 300 | 300 | 330 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3983 | 3853 | >4000 | 3694 |
| Temperature (Field) | deg c | -- | 15 | 13.8 | 11.2 | 14.1 | 10.9 |
| pH (Field) | - | -- | -- | 6.83 | 6.83 | 6.69 | 6.81 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|-----------------------|----------|-----------------|--------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 19-Aug-2015 (8) | 17-June-2016 | 22-Aug-2016 | 02-May-2017 |
| | | | | P6-91 | P6-91 | P6-91 | P6-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2100 | 2170 | 2120 | 1970 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 86 | 74.3 | 177 | 75 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | 12 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | 368 |
| Chloride | mg/l | -- | 250 | 440 | 502 | 495 | 385 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 210 | 106 | 164 | 99.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1600 | 1560 | 1240 | 1490 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | < 0.5 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | < 0.5 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | 77.9 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | 0.02 | 0.05 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.41 | 0.45 | 0.27 | 0.22 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (9) | -- | -- | -- | < 10 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 3000 | 3396 | 3953 | 2640 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.11 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | 0.776 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0002 |
| Boron, dissolved | mg/l | 5 | -- | 3.4 | 3.34 | 8.67 | 2.92 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | 0.000071 |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 403 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | 0.014 |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0039 | -- | 0.0036 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 5.2 | 5.06 | 6.04 | 7.95 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 117 |
| Manganese, dissolved | mg/l | -- | 0.05 | 13 | 13.5 | 6.31 | 12.7 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | 0.02 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | 64.6 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | 12.8 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | 0.00005 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 330 | 383 | 472 | 364 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | 2.11 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | 10.5 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0388 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | 0.01 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3504 | 4060 | 5480 | 4060 |
| Temperature (Field) | deg c | -- | 15 | 13.2 | 10.4 | 14.1 | 7 |
| pH (Field) | - | -- | -- | 6.7 | 7 | 6.9 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|---------------|-------------|---------------|
| | | | | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 25-April-2019 |
| | | | | P6-91 | P6-91 | P6-91 | P6-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2080 | 2010 | 2310 | 1980 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 100 | 88.8 | 133 | 83.8 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 23 | 12 | 16 | 13 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 430 | 384 | 490 | 404 |
| Chloride | mg/l | -- | 250 | 351 | 526 | 492 | 453 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | 4200 | 3970 | 4600 | 4120 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 106 | 121 | 19.7 | 125 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1570 | 1480 | 1340 | 1490 |
| Nitrate as N | mg/l | 10 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.5 | < 0.5 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 101 | 117 | 183 | 105 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | 0.02 | < 0.01 | 0.209 |
| Phosphorus | mg/l | -- | -- | 0.16 | 0.31 | 0.29 | 0.3 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | 4 | < 10 | < 10 | 14 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 2613 | 2787 | 3124 | 2776 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.17 | 0.15 | 0.15 | 0.12 |
| Barium, dissolved | mg/l | 1 | -- | 1.01 | 0.844 | 0.939 | 0.732 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | 0.0002 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 4.32 | 2.69 | 5.23 | 4.5 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000014 | < 0.000015 | < 0.000059 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 426 | 404 | 363 | 405 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.016 | 0.003 | 0.016 | 0.011 |
| Cobalt, dissolved | mg/l | -- | -- | 0.007 | 0.0015 | 0.0079 | 0.0062 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | 0.0002 | < 0.0003 | 0.0054 |
| Iron, dissolved | mg/l | -- | 0.3 | 9.62 | 7.36 | 6.52 | 5.5 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | < 0.00002 | < 0.0002 | 0.00013 |
| Magnesium, dissolved | mg/l | -- | -- | 122 | 114 | 106 | 115 |
| Manganese, dissolved | mg/l | -- | 0.05 | 13.8 | 12.5 | 10.9 | 13.3 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0003 | < 0.0001 | 0.0005 | 0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.01 | 0.01 | 0.02 | 0.0134 |
| Potassium, dissolved | mg/l | -- | -- | 95.1 | 77.5 | 105 | 68.8 |
| Silicon, dissolved | mg/l | -- | -- | 14 | 12.9 | 11.5 | 10.9 |
| Silver, dissolved | mg/l | -- | -- | 0.00004 | < 0.0001 | < 0.0002 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 438 | 441 | 484 | 408 |
| Strontium, dissolved | mg/l | -- | -- | 2.47 | 2.33 | 2.21 | 2.32 |
| Sulfur, dissolved | mg/l | -- | -- | 6.1 | 8 | 9.9 | 8.6 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.008 | 0.012 | 0.012 | 0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0362 | 0.0094 | 0.0402 | 0.02 |
| Zinc, dissolved | mg/l | -- | 5 | 0.008 | 0.009 | 0.005 | 0.009 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.003 | 0.005 | 0.027 | 0.003 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3970 | Metre | 2570 | 4950 |
| Temperature (Field) | deg c | -- | 15 | 13.8 | Malfunctioned | 14.3 | 7.5 |
| pH (Field) | - | -- | -- | 7.0 | -- | 6.8 | 6.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|---------------------------------|---------------------|--------------|-------------|------------|-------------|
| | | | | 25-Sept-2019 | 27-May-2020 | 5-Nov-2020 | 27-May-2021 |
| | | | | P6-91 | P6-91 | P6-91 | P6-91 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2400 | 1660 | 1310 | 2010 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 275 | -- | 129 | 211 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 18 | 14 | 12 | 18 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 550 | 395 | 297 | 462 |
| Chloride | mg/l | -- | 250 | 555 | 380 | 346 | 381 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | 5306 | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 145 | 91.8 | 75.4 | 20.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1030 | 1440 | 777 | 1260 |
| Nitrate as N | mg/l | 10 | -- | < 1 | 1.91 | 0.22 | 0.88 |
| Nitrite as N | mg/l | 1.0 | -- | < 1 | 0.77 | < 0.05 | 0.91 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 319 | 101 | 137 | 184 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.315 | 0.036 | 0.094 | 0.046 |
| Phosphorus | mg/l | -- | -- | 0.37 | 0.27 | 0.28 | 0.28 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ^(b) | < 30 | < 10 | 44 | 72 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 3407 | 2484 | 1878 | 2989 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.11 | 0.11 | 0.1 | 0.16 |
| Barium, dissolved | mg/l | 1 | -- | 0.996 | 0.539 | 0.291 | 0.896 |
| Beryllium, dissolved | mg/l | -- | -- | 0.0002 | 0.0001 | 0.0001 | 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 10.4 | 3.14 | 3.14 | 6.76 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000059 | < 0.000059 | 0.000024 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 274 | 387 | 184 | 339 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.021 | 0.009 | 0.011 | 0.013 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0097 | 0.0056 | 0.0055 | 0.0079 |
| Copper, dissolved | mg/l | -- | 1 | 0.0031 | 0.004 | 0.0011 | 0.0006 |
| Iron, dissolved | mg/l | -- | 0.3 | 8.91 | 0.448 | 0.218 | 6.62 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.0002 | < 0.0002 | 0.00015 | < 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 82.8 | 115 | 77.1 | 99.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.71 | 12.7 | 4.11 | 9.58 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0007 | 0.0007 | 0.0004 | 0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.01 | 0.0172 | 0.0085 | 0.0138 |
| Potassium, dissolved | mg/l | -- | -- | 192 | 73.7 | 95 | 124 |
| Silicon, dissolved | mg/l | -- | -- | 11.7 | 12 | 10.1 | 10.9 |
| Silver, dissolved | mg/l | -- | -- | < 0.0002 | < 0.0002 | 0.0004 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ^(c) | 496 | 412 | 341 | 479 |
| Strontium, dissolved | mg/l | -- | -- | 2.28 | 2.07 | 1.33 | 2.3 |
| Sulfur, dissolved | mg/l | -- | -- | 7.5 | 6.8 | 16.6 | 25.5 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.005 | < 0.00005 | 0.00007 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.018 | < 0.005 | < 0.005 | 0.012 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0483 | 0.0136 | 0.0259 | 0.0217 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.007 | < 0.002 | 0.009 | 0.007 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 3999 | 2000 | 2855 | 4820 |
| Temperature (Field) | deg c | -- | 15 | 14.75 | 10.5 | 11.6 | 8.5 |
| pH (Field) | - | -- | -- | 7.3 | 8.3 | 7.6 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|------------|-----------|
| | | | | 18-Aug-2021 | 31-May-2022 | 28-Oct-2022 | 05-May-23 | 16-Aug-23 |
| | | | | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 2220 | 1910 | 2300 | 1760 | 1590 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 210 | 160 | 254 | 82.7 | 131 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 19 | 12 | 15 | 14 | 9 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 457 | 384 | 479 | 340 | 386 |
| Chloride | mg/l | -- | 250 | 492 | 365 | 389 | 343 | 402 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | 3670 | 3710 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 24.5 | 73.8 | 66.7 | 89.0 | 64.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1160 | 1270 | 1110 | 1140 | 1190 |
| Nitrate as N | mg/l | 10 | -- | 0.73 | < 0.5 | < 1 | < 0.05 | <0.40 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.5 | < 0.5 | < 1 | < 0.05 | <0.40 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 171 | 174 | 7.8 | 98.5 | 146 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.031 | 0.012 | 0.062 | < 0.002 | 0.009 |
| Phosphorus | mg/l | -- | -- | 0.3 | 0.45 | 0.4 | 0.30 | 0.42 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | 22 | 37 | < 30 | 78 | 6 |
| Sulphate, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 3141 | 2558 | 3124 | 2466 | 2550 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.13 | 0.11 | 0.12 | 0.15 | 0.11 |
| Barium, dissolved | mg/l | 1 | -- | 0.738 | 0.778 | 0.606 | 0.695 | 0.419 |
| Beryllium, dissolved | mg/l | -- | -- | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 5.51 | 5.76 | 6.69 | 4.18 | 3.83 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000059 | < 0.000059 | < 0.000059 | < 0.000029 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 310 | 345 | 303 | 323 | 334 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.014 | 0.023 | 0.016 | 0.008 | 0.011 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0077 | 0.0062 | 0.009 | 0.0051 | 0.0067 |
| Copper, dissolved | mg/l | -- | 1 | <0.0003 | 0.0007 | 0.0015 | 0.0014 | 0.0008 |
| Iron, dissolved | mg/l | -- | 0.3 | 6.39 | 11.6 | 6.11 | 7.88 | 8.71 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.0002 | < 0.0002 | < 0.0002 | < 0.00009 | <0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 92.9 | 98.3 | 86.9 | 80.3 | 85.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.69 | 10.5 | 6.72 | 9.27 | 8.24 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0011 | 0.0005 | 0.0005 | 0.0004 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | 0.0126 | 0.0099 | 0.01 | 0.01 | 0.0126 |
| Potassium, dissolved | mg/l | -- | -- | 113 | 109 | 148 | 89.4 | 101 |
| Silicon, dissolved | mg/l | -- | -- | 11.2 | 11.7 | 8.3 | 8.23 | 10.1 |
| Silver, dissolved | mg/l | -- | -- | < 0.0002 | < 0.0002 | < 0.0002 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 475 | 436 | 476 | 371 | 398 |
| Strontium, dissolved | mg/l | -- | -- | 2.16 | 2.08 | 2.08 | 1.86 | 2.02 |
| Sulfur, dissolved | mg/l | -- | -- | 8.2 | 20.5 | 7.8 | 29.6 | 9.77 |
| Thallium, dissolved | mg/l | -- | -- | 0.00015 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.0011 | 0.007 | 0.008 | 0.005 | 0.007 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0335 | 0.0259 | 0.0361 | 0.0234 | 0.0252 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | 0.006 | 0.006 | <0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.004 | 0.002 | 0.007 | < 0.001 | 0.003 |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 5470 | 4590 | 4110 | 3936 | 3744 |
| Temperature (Field) | deg c | -- | 15 | 14.2 | 8.7 | 12.5 | 9.2 | 15.6 |
| pH (Field) | - | -- | -- | 6.9 | 7.2 | 6.94 | 6.85 | 6.94 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 |
|----------------------------------|-------|---------------------------------|-----------------|-------------|-------------|-------------|-----------------|-----------------|
| | | | | 01-May-1992 | 08-Sep-1992 | 27-Nov-1992 | 05-May-1993 (7) | 10-Nov-1993 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 550 | 620 | 660 | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.1 | 0.33 | 0.36 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 14 | 5 | 9 | -- | -- |
| Bromide | mg/l | -- | -- | <0.5 | <0.5 | <0.5 | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 83 | 83 | 67 | -- | -- |
| Chloride | mg/l | -- | 250 | 57 | 44 | 43 | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | 1439 | 1400 | 1250 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | | | | | |
| Fluoride | mg/l | 1.5 | -- | 1.1 | 1.35 | 1.5 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 65 | 41 | 41 | -- | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.36 | 0.12 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | 0.2 | <0.1 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.11 | 1.73 | 2.1 | -- | -- |
| Nitrogen, Organic | mg/l | 10.0 | -- | 1.11 | 1.4 | 1.74 | -- | -- |
| pH (Field) | - | 0.15 | -- | 7.6 | 7.9 | 7.5 | -- | -- |
| Phosphate | mg/l | -- | -- | 0.91 | 0.38 | 1.8 | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.3 | <0.1 | <0.1 | -- | -- |
| Sulphate | mg/l | -- | 500 (5) | 57 | 94 | 69 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 9 | 7 | 8 | -- | -- |
| Total Dissolved Solids | mg/l | -- | -- | 710 | 810 | 830 | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | 28 | 33 | 35 | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | 1.66 | 4.22 | 3.84 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.02 | <0.01 | <0.01 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.56 | 0.67 | 0.42 | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 13 | 10 | 10 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.03 | <0.01 | <0.01 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.13 | 2.8 | 3.07 | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 8 | 4 | 4 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.07 | 0.04 | 0.07 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | 0.01 | <0.01 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 9 | 11 | 9 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 8.7 | 15.7 | 12 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 274 | 333 | 326 | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.05 | 0.05 | <0.01 | -- | -- |
| Sulfur | mg/l | -- | -- | 15 | 34 | 24 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.1 | <0.01 | 0.18 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.02 | <0.01 | <0.01 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 |
|----------------------------------|-------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 03-Jun-1994 (7) | 09-Sep-1994 (7) | 24-Nov-1994 (7) | 04-Jun-1995 (7) | 11-Sep-1995 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 |
|----------------------------------|-------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 07-Nov-1995 (7) | 17-Jul-1996 (7) | 22-Nov-1996 (7) | 10-Jun-1997 (7) | 09-Sep-1997 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 |
|----------------------------------|-------|---------------------------------|--------------------|-----------------|-----------------|-----------------|-----------------|-------------|------------|-------------|
| | | | | 11-Jun-1998 (7) | 20-Aug-1998 (7) | 25-May-1999 (7) | 31-Aug-1999 (7) | 26-May-2020 | 4-Nov-2020 | 26-May-2021 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | 631 | 580 | 680 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | 0.29 | 0.74 | 0.41 |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | 40.2 | 41.5 | 41.1 |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- | -- | 1243 |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | 24.3 | 5.1 | 5.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | 29 | 64 | 29 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | 0.15 | -- | -- | -- | -- | -- | 1.47 | 0.58 | 8.8 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | 1.09 | 1.77 | 1.46 |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | 1.47 | 0.58 | 3.16 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- | -- | 9.8 |
| Total Dissolved Solids | mg/l | -- | -- | -- | -- | -- | -- | 752 | 737 | 823 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | 0.58 | 0.592 | 0.605 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | <0.0001 | 0.0074 | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | 0.204 | 9 | 0.502 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | 0.012 | 0.172 | 0.017 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0017 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | 313 | 322 | 351 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | G8A-92 | G8A-92 | G8A-92 | G8A-92 | G8A-92 |
|----------------------------------|-------|---------------------------------|-----------------|-------------|-------------|-------------|-----------|-----------|
| | | | | 17-Aug-2021 | 31-May-2022 | 28-Oct-2022 | 03-May-23 | 14-Aug-23 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 634 | 603 | 605 | 599 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | 0.36 | 0.26 | 0.21 | 0.32 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 49 | 43.8 | 42.7 | 47.2 | -- |
| Conductivity (Field) | uS/cm | -- | -- | 1470 | -- | -- | 1430 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21.5 | 23.8 | 22.3 | 35.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 34 | 29 | 27 | 27 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | 0.15 | -- | 8.43 | 8.9 | 8.42 | 8.59 | -- |
| Phosphate | mg/l | -- | -- | 0.977 | 1.22 | 1.2 | 1.27 | -- |
| Phosphorus | mg/l | -- | -- | 1.22 | 1.87 | -- | 1.34 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 10.4 | 8.8 | 9.1 | 7.9 | -- |
| Total Dissolved Solids | mg/l | -- | -- | 823 | 762 | 699 | 734 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.616 | 0.626 | 0.564 | 0.618 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 3.74 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.723 | 0.368 | 0.368 | 0.332 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 4.28 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.025 | 0.016 | 0.012 | 0.013 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 337 | 331 | 292 | 312 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 |
|----------------------------------|-------|-----------------------|----------|-----------------|-------------|-------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 01-May-1992 (6) | 08-Sep-1992 | 27-Nov-1992 | 05-May-1993 (7) | 10-Nov-1993 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 306 | 300 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.65 | 0.44 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | <1 | 1 | -- | -- |
| Bromide | mg/l | -- | -- | -- | 0.6 | <0.5 | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 30 | 21 | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 45 | 33 | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | 800 | 725 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | 0.61 | 0.57 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 72 | 92 | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | 0.19 | 0.31 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | 0.16 | <0.1 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.87 | 0.8 | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | 0.22 | 0.36 | -- | -- |
| pH (Field) | - | -- | -- | -- | 7.6 | 7.4 | -- | -- |
| Phosphate | mg/l | -- | -- | -- | 0.13 | 0.27 | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | <0.1 | <0.1 | -- | -- |
| Sulphate | mg/l | -- | 500 (5) | -- | 62 | 52 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 8 | 9 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 470 | 420 | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | 12 | 9.4 | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 2.11 | 0.14 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | <0.01 | 0.03 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.34 | 0.2 | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | <0.002 | <0.002 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 14 | 17 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | <0.01 | <0.01 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.03 | <0.01 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | <0.01 | <0.01 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.98 | 0.06 | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.002 | <0.002 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 9 | 12 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.02 | 0.02 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 6 | 7 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 11 | 4 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 164 | 132 | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.12 | <0.01 | -- | -- |
| Sulfur | mg/l | -- | -- | -- | 23 | 19 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | <0.05 | <0.05 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | <0.05 | <0.05 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | <0.01 | <0.01 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | <0.01 | <0.01 | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.002 | <0.002 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 |
|----------------------------------|-------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 03-Jun-1994 (7) | 09-Sep-1994 (7) | 24-Nov-1994 (7) | 04-Jun-1995 (7) | 11-Sep-1995 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 |
|----------------------------------|-------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 07-Nov-1995 (7) | 17-Jul-1996 (7) | 22-Nov-1996 (7) | 10-Jun-1997 (7) | 09-Sep-1997 (7) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (4) ODWQS AO | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 | G8B-92 |
|----------------------------------|-------|---------------------------------|--------------------|-----------------|-----------------|-----------------|-----------------|-------------|------------|-------------|-------------|
| | | | | 11-Jun-1998 (7) | 20-Aug-1998 (7) | 25-May-1999 (7) | 31-Aug-1999 (7) | 26-May-2020 | 4-Nov-2020 | 26-May-2021 | 17-Aug-2021 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- | 283 | 261 | 301 | 296 |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- | 0.26 | 0.11 | <0.01 | 0.16 |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- | 13.4 | 12.8 | 12.8 | 15 |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- | -- | -- | 575 | 670 |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- | 7.9 | 7.4 | 6.9 | 7.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- | 58 | 59 | 86 | 74 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- | -- | -- | 8.6 | 8.3 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | 0.306 | 0.332 | 0.287 | 0.356 |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | 0.88 | 0.54 | 0.9 | 0.55 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- | -- | -- | 9.2 | 9.8 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- | 343 | 331 | 372 | 370 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- | 0.292 | 0.273 | 0.29 | 0.286 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | < 0.0001 | < 0.0001 | 0.0007 | 0.0002 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- | 0.271 | 0.101 | 2.09 | 0.953 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- | 0.02 | 0.015 | 0.026 | 0.018 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.0006 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- | 122 | 122 | 127 | 123 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8B-92 | G8B-92 | G8B-92 | G8B-92 |
|----------------------------------|-------|-----------------------|--------------------|-------------|-------------|-----------|-----------|
| | | ODWQS(169 /03)-Health | ODWQS AO | 31-May-2022 | 28-Oct-2022 | 03-May-23 | 14-Aug-23 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 275 | 276 | 276 | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.15 | 0.1 | 0.09 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 14.7 | 13.5 | 14.2 | -- |
| Conductivity (Field) | uS/cm | -- | -- | 690 | 530 | 720 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.8 | 8.7 | 7.4 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 64 | 61 | 62 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | 8.6 | 8.03 | 8.13 | -- |
| Phosphate | mg/l | -- | -- | 0.269 | 0.278 | 0.282 | -- |
| Phosphorus | mg/l | -- | -- | 0.48 | -- | 0.40 | -- |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 8.3 | 8.7 | 6.1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 351 | 323 | 346 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.302 | 0.268 | 0.280 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | 11.2 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.154 | 0.144 | 0.048 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 8.31 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.017 | 0.014 | 0.010 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | 8.31 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 0.01 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 127 | 112 | 119 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 01-May-1992 | 08-Sep-1992 | 27-Nov-1992 | 05-May-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 45 | 66 | 68 | 70 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.21 | <0.1 | <0.1 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 1 | 2 | 2 | -- |
| Bromide | mg/l | -- | -- | <0.5 | 1.5 | <0.5 | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | <3 | 8 | 8 |
| Chloride | mg/l | -- | 250 | <1 | 1 | 5 | 63 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | 2 |
| Fluoride | mg/l | 1.5 | -- | 0.16 | 0.21 | 0.19 | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 31 | 50 | 58 | 212 |
| Nitrate as N | mg/l | 10 | -- | 0.45 | 0.85 | 0.96 | 3.16 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.47 | <0.1 | <0.1 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.26 | <0.1 | <0.1 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 0.33 | 1.4 | 0.93 | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 8 | 11 | 13 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 70 | 80 | 100 | 290 |
| Total Organic Carbon | mg/l | -- | -- | 1.1 | 0.9 | 1.2 | 2.4 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.13 | 0.49 | 0.41 | 0.74 |
| Barium, dissolved | mg/l | 1 | -- | <0.01 | <0.01 | 0.01 | 0.03 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | <0.01 | 0.04 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 6 | 15 | 15 | 52 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | 0.02 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.14 | 0.83 | 0.55 | 0.17 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 4 | 3 | 5 | 20 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.04 | 0.04 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 10 | 4 | 3 |
| Silicon, dissolved | mg/l | -- | -- | 4.4 | 7.7 | 6.3 | 2.1 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 11 | 9 | 13 | 9 |
| Strontium, dissolved | mg/l | -- | -- | <0.01 | 0.04 | 0.1 | 0.38 |
| Sulfur, dissolved | mg/l | -- | -- | 5 | 9 | 4 | 31 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 109 | 120 | 160 | 440 |
| Temperature (Field) | deg c | -- | 15 | 6 | 9 | 8 | 6 |
| pH (Field) | - | -- | -- | 7.8 | 7.7 | 7.6 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Nov-1993 | 03-Jun-1994 | 09-Sep-1994 | 24-Nov-1994 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 99 | 68 | 101 | 178 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.12 | 0.02 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 1 | <1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | 3 | 8 | 5 |
| Chloride | mg/l | -- | 250 | 113 | 6 | 4 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.2 | 1.3 | 1.4 | 2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 384 | 75 | 71 | 161 |
| Nitrate as N | mg/l | 10 | -- | 1.7 | 0.67 | 0.36 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.3 | 0.21 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | 0.18 | 0.19 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | 0.09 | 2.77 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | 29 | 21 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 510 | 130 | 160 | 248 |
| Total Organic Carbon | mg/l | -- | -- | 2.6 | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | 0.07 | 0.11 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.07 | 0.01 | <0.01 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.05 | 0.04 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.00015 | <0.00015 | -- |
| Calcium, dissolved | mg/l | -- | -- | 101 | 20 | 20 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | 0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.0004 | <0.0004 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.005 | <0.005 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.06 | 0.12 | 0.17 | 0.19 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 32 | 6 | 5 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.13 | 0.04 | 0.05 | 0.13 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.0002 | <0.0002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | 4 | 1 | 1 | -- |
| Silicon, dissolved | mg/l | -- | -- | 5.6 | 3.7 | 4.6 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.0001 | 0.0002 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 10 | 5 | 5 | 11 |
| Strontium, dissolved | mg/l | -- | -- | 0.74 | 0.12 | 0.11 | 0.23 |
| Sulfur, dissolved | mg/l | -- | -- | 44 | 11 | 9 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.005 | <0.005 | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.007 | <0.007 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.001 | <0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 900 | 170 | 230 | 375 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 9.5 | 12 | 9 |
| pH (Field) | - | -- | -- | 6.6 | 6.2 | 7.3 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 04-Jun-1995 | 11-Sep-1995 | 07-Nov-1995 | 16-Jul-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 120 | 116 | 115 | 126 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | 0.11 | -- | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 3 | -- | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | 11 | 13 | 8 |
| Chloride | mg/l | -- | 250 | 9 | 3 | 2 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3 | 2.4 | 2.9 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 108 | 105 | 110 | 135 |
| Nitrate as N | mg/l | 10 | -- | 0.22 | 0.21 | -- | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | -- | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.89 | 0.23 | -- | 0.23 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.83 | 0.12 | -- | 0.17 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 2.32 | 3.26 | -- | 3.4 |
| Sulphate | mg/l | -- | 500 (3) | 23 | 26 | -- | 21 |
| Total Dissolved Solids | mg/l | -- | 500 | 188 | 180 | 188 | 168 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.2 | 0.73 | -- | 0.33 |
| Barium, dissolved | mg/l | 1 | -- | 0.02 | 0.02 | -- | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.06 | 0.08 | -- | 0.08 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00015 | <0.00015 | -- | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 30 | 29 | -- | 31 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | -- | 0.25 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0005 | 0.0036 | -- | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | 0.014 | <0.005 | -- | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.95 | 1.43 | 0.32 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | -- | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 8 | 8 | -- | 14 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.1 | 0.13 | 0.17 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | 0.0006 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | -- | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 3 | -- | 5 |
| Silicon, dissolved | mg/l | -- | -- | 5.1 | 7.7 | -- | 3.5 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | -- | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | 11 | 14 | 15 |
| Strontium, dissolved | mg/l | -- | -- | 0.166 | 0.153 | 0.168 | 0.247 |
| Sulfur, dissolved | mg/l | -- | -- | 8 | 10 | -- | 7 |
| Thallium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | -- | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | 0.04 | -- | 0.02 |
| Vanadium, dissolved | mg/l | -- | -- | <0.007 | <0.007 | -- | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | 0.06 | -- | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.003 | <0.001 | -- | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 200 | 250 | 280 | 260 |
| Temperature (Field) | deg c | -- | 15 | 10 | 13 | 13 | 10 |
| pH (Field) | - | -- | -- | 6 | 7 | 7.4 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 21-Nov-1996 | 10-Jun-1997 | 10-Sep-1997 | 11-Jun-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 194 | 99 | 100 | 136 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | 0.14 | 0.09 | 0.21 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 1 | 1 | 4 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 18 | 17 | 5 | 12 |
| Chloride | mg/l | -- | 250 | 4 | 4 | 5 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.3 | 3.1 | 2.1 | 2.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 206 | 104 | 110 | 150 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.31 | <0.1 | 0.14 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.35 | 0.26 | 0.13 | 0.29 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.17 | 0.12 | 0.04 | 0.08 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 7.78 | 4.29 | 1.07 | 5.97 |
| Sulphate | mg/l | -- | 500 (3) | 27 | 24 | 11 | 14 |
| Total Dissolved Solids | mg/l | -- | 500 | 248 | 156 | 340 | 180 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.37 | 0.11 | 4 | 1.58 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.01 | 0.04 | 0.01 |
| Beryllium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.03 | 0.03 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 56 | 27 | 29 | 42 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.11 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | 0.015 | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.31 | 0.05 | 2.45 | 1.55 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | 0.003 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 16 | 9 | 9 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.01 | 0.11 | 0.07 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | <0.03 | <0.03 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 2 | 2 | 3 |
| Silicon, dissolved | mg/l | -- | -- | 3.5 | 2.7 | 4.3 | 3.5 |
| Silver, dissolved | mg/l | -- | -- | <0.001 | <0.004 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | 6 | 5 | 7 |
| Strontium, dissolved | mg/l | -- | -- | 0.301 | 0.174 | 0.161 | 0.178 |
| Sulfur, dissolved | mg/l | -- | -- | <3 | 8 | 4 | 6 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.2 | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | 0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | 0.04 | 0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 220 | 160 | 190 | 230 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 6 | 16 | 10.5 |
| pH (Field) | - | -- | -- | 6.9 | 6.6 | 7.2 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 20-Aug-1998 | 25-May-1999 | 30-Aug-1999 | 30-May-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 130 | 118 | 163 | 107 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.07 | 0.05 | 0.3 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 3 | 5 | 2 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | 5 | 13 | 15 |
| Chloride | mg/l | -- | 250 | 3 | 3 | 3 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 2.1 | 2.4 | 4.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 130 | 117 | 192 | 134 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.26 | 0.15 | 0.34 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.17 | 0.19 | 0.18 | 0.44 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.14 | 0.12 | 0.13 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.45 | 2.47 | 0.95 | 8.39 |
| Sulphate | mg/l | -- | 500 (3) | 14 | 16 | 25 | 17 |
| Total Dissolved Solids | mg/l | -- | 500 | 160 | 144 | 220 | 188 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.81 | <0.03 | 0.53 | 1.05 |
| Barium, dissolved | mg/l | 1 | -- | 0.02 | <0.01 | 0.03 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.03 | 0.04 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 34 | 32 | 52 | 34 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | <0.005 | <0.005 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.82 | <0.01 | 0.34 | 0.9 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.05 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 11 | 9 | 15 | 12 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.12 | <0.01 | 0.12 | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | <0.0002 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 2 | 2 | 4 |
| Silicon, dissolved | mg/l | -- | -- | 3.6 | 2 | 4 | 2.85 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 5 | 9 | 6 |
| Strontium, dissolved | mg/l | -- | -- | 0.198 | 0.103 | 0.285 | 0.139 |
| Sulfur, dissolved | mg/l | -- | -- | 6 | 5 | 9 | 6 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.2 | <0.5 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | 0.04 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 260 | 170 | 260 | 190 |
| Temperature (Field) | deg c | -- | 15 | 13 | 5 | 10 | 7 |
| pH (Field) | - | -- | -- | 7.3 | 7.13 | 6.84 | 8.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Aug-2000 | 28-May-2001 | 08-Aug-2001 | 04-Apr-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 119 | 211 | 165 | 151 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.26 | 0.09 | 0.2 | 0.15 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 1 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 6 | 7 | 4 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 3 | 2.5 | 2.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 130 | 232 | 137 | 147 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.16 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.16 | 0.88 | 3.62 | 4.95 |
| Sulphate | mg/l | -- | 500 (3) | 23 | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 180 | 348 | 188 | 214 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 3.02 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.05 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.002 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.04 | 0.04 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 34 | 60 | 35 | 39 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0034 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.008 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.38 | 0.02 | 0.01 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.003 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 11 | 20 | 12 | 12 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.16 | 0.04 | 0.08 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 2 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 4.92 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 7 | 11 | 7 |
| Strontium, dissolved | mg/l | -- | -- | 0.189 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 7 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.03 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.007 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.01 | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 245 | 300 | 440 | 540 |
| Temperature (Field) | deg c | -- | 15 | 13.9 | 9.5 | 10 | 6 |
| pH (Field) | - | -- | -- | 6.6 | 6.8 | 6.1 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Aug-2002 | 14-May-2003 | 27-Aug-2003 | 26-May-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 181 | 117 | 148 | 92 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.16 | 0.12 | 0.22 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 5 | 3 | 22.1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.7 | 4.1 | 2.6 | 3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 190 | 122 | 158 | 105.5 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.02 | < 0.01 | 0.007 |
| Phosphorus | mg/l | -- | -- | 8.41 | 7.93 | 4.8 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 256 | 163 | 216 | 164 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.05 | <0.05 | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 53 | 34 | 42 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.43 | 0.02 | <0.01 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 14 | 9 | 13 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.123 | 0.006 | 0.027 | <0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 6 | 8 | 3.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 580 | 130 | 190 | 192 |
| Temperature (Field) | deg c | -- | 15 | 15 | 6 | 13 | 7.3 |
| pH (Field) | - | -- | -- | 7.2 | 7.1 | 7.3 | 7.41 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 29-Aug-2004 | 27-May-2005 | 25-Aug-2005 | 31-May-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 103 | 117 | 139 | 137 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | 0.09 | 0.12 | 0.09 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 6 | 4 | 8 | 10 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 2 | 2.6 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 96.5 | 109 | 140 | 147 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.005 | 0.07 | 0.04 | 0.01 |
| Phosphorus | mg/l | -- | -- | <0.1 | 1.69 | 1.5 | 4.5 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 114 | 171 | 190 | 209 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.02 | 0.04 | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 27 | 38 | 39 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.01 | 0.01 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 10 | 11 | 12 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.033 | <0.01 | 0.06 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4.6 | 5 | 7 | 7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 263 | 220 | 300 |
| Temperature (Field) | deg c | -- | 15 | -- | 9 | 15.7 | 12 |
| pH (Field) | - | -- | -- | -- | 7.4 | 7.1 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Sep-2006 | 29-May-2007 | 28-Aug-2007 | 02-May-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 145 | 141 | 210 | 152 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.13 | 0.09 | 0.14 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 7 | 10 | 8 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3 | 5.2 | 5.2 | 4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 135 | 109 | 202 | 130 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.04 | 0.02 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 3.91 | 7.64 | 9.18 | 6.05 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 202 | 196 | 285 | 194 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.03 | 0.02 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 36 | 29 | 56 | 34 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | 0.24 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 11 | 9 | 15 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.15 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 8 | 4 | 9 | 15 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 280 | 375 | 425 | 205 |
| Temperature (Field) | deg c | -- | 15 | 14 | 10 | 13.3 | 6.5 |
| pH (Field) | - | -- | -- | 7 | 8.4 | 8.3 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|---------------------|---------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Aug-2008 | 13-Apr-2009 | 13-Aug-2009 | 01-Jun-2010 |
| | | | | | G-8-92 | 8-92 | C-3 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 148 | 131 | 160 | 199 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | 0.32 | 0.18 | 0.07 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 8 | 1 | 2 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.8 | 1.9 | 2.1 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 159 | 110 | 160 | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 4.98 | 7.6 | 3.1 ⁽¹⁴⁾ | 1.2 ⁽¹⁴⁾ |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 233 | 165 | 245 | 294 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | <0.02 | 0.02 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 44 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.02 | <0.02 | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 12 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 7 | 11.8 | 7.2 | 6.7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 280 | 210 | 348 | 442 |
| Temperature (Field) | deg c | -- | 15 | 17 | 4 | 14.6 | 10.5 |
| pH (Field) | - | -- | -- | 7.1 | 7.4 | 6.8 | 6.73 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|--------------------|---------------------|-------------|-------------|-----------------------|
| | | ODWQS(169 | ODWQS- | 11-Aug-2010 | 29-Apr-2011 | 23-Aug-2011 | 04-Jun-2012 |
| | | /03)-Health | AO | C-1 | R-14 | G8C-92 | 8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 218 | 74 | 135 | 190 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | <0.02 | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | 0.39 | 0.11 | 0.081 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 8 | 11 | 10 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.4 | 2.5 | 1.7 | 3.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 250 | 79 | 120 | 230 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.03 | 0.02 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 2.0 ⁽¹⁴⁾ | 11 | 3.2 | <0.10 ⁽¹⁵⁾ |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 300 | 108 | 220 | 270 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | <0.02 | 0.02 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 7.9 | 3.9 | 6.4 | 8.1 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 431 | 151 | 249 | 361 |
| Temperature (Field) | deg c | -- | 15 | 16.4 | 5.3 | 16.4 | 10.1 |
| pH (Field) | - | -- | -- | 6.01 | 8.24 | 6.65 | 6.75 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 29-Aug-2012 | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 |
| | | /03)-Health | AO | 8C-92 | R-4 | 8-92C | 8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 180 | 220 | 160 | 200 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | 0.22 | 0.14 | 0.38 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 6 | 4 | 5 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.2 | 2.5 | 1.9 | 3.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | 240 | 160 | 170 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.64 | 4.7 | 2.4 | 8.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 170 | 196 | 224 | 230 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.03 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.00050 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7.0 | 7.9 | 9.2 | 6.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 365 | 426 | 324 | 383 |
| Temperature (Field) | deg c | -- | 15 | 15.8 | 5.7 | 13.8 | 9.7 |
| pH (Field) | - | -- | -- | 6.67 | 7.09 | 6.59 | 7.44 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|--------------|
| | | ODWQS(169 | ODWQS- | 26-Aug-2014 | 20-May-2015 | 18-Aug-2015 | 16-June-2016 |
| | | /03)-Health | AO | 8C-92 | 8C | 8C-92 | 8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 160 | 190 | 190 | 319 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.25 | 0.25 | 0.15 | 0.36 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 3 | 3 | 3.5 | 12.4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.4 | 3.1 | 2.3 | 8.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 160 | 200 | 190 | 50 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | 0.35 |
| Phosphorus | mg/l | -- | -- | 5.1 | 2.6 | 2.5 | 1.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 180 | 238 | 220 | 415 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.02 | 0.03 | 0.251 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.02 | <0.00050 | <0.00050 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | 0.167 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | <0.01 | 0.016 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7.6 | 6.1 | 8.0 | 130 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 334 | 384 | 409 | 598 |
| Temperature (Field) | deg c | -- | 15 | 15.7 | 9.9 | 12.3 | 9.2 |
| pH (Field) | - | -- | -- | 7.96 | 7.43 | 7.5 | 7.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|---------|-------------|------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 22-Aug-2016 | 2-May-2017 | 21-Sep-2017 | 01-May-2018 |
| | | /03)-Health | AO | 8C-92 | 8C-92 | 8C-92 | 8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 185 | 293 | 204 | 208 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.29 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2.9 | 11.7 | 4.4 | 7.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 6 | 3.9 | 3.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 182 | 56 | 246 | 272 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | 0.31 | 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.95 | 0.86 | 0.66 | 2.18 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 242 | 340 | 227 | 270 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.026 | 0.259 | 0.022 | 0.029 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.005 | < 0.005 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | 0.22 | < 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | < 0.001 | 0.016 | 0.001 | 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5.9 | 117 | 5.8 | 6.1 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 383 | 589 | 363 | 330 |
| Temperature (Field) | deg c | -- | 15 | 12 | 7.8 | 13.0 | 4.8 |
| pH (Field) | - | -- | -- | 6.7 | 7.5 | 7.0 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|---------|-------------|---------------|--------------|-------------|
| | | ODWQS(169 | ODWQS- | 21-Aug-2018 | 24-April-2019 | 25-Sept-2019 | 26-May-2020 |
| | | /03)-Health | AO | 8C-92 | 8C-92 | 8C-92 | 8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 249 | 157 | 183 | 133 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.1 | 0.22 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4.6 | 2.1 | 16.4 | 5.2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.2 | 0.3 | 4.4 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 279 | 177 | 258 | 179 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 1.03 | 2.5 | 0.043 |
| Phosphorus | mg/l | -- | -- | 0.5 | 1.63 | 4.47 | 2.26 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 280 | 167 | 235 | 170 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.013 | 0.027 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 51 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | 0.0001 | -- | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | < 0.005 | 0.09 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 12 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.001 | < 0.001 | 0.001 | 0.002 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0006 | -- | 0.0011 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5.9 | 3.2 | 4.6 | 5.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0003 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 407 | 360 | 412 | 340 |
| Temperature (Field) | deg c | -- | 15 | 12.3 | 3.9 | 13.3 | 10.6 |
| pH (Field) | - | -- | -- | 6.9 | 6.9 | 7.4 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-----------------------|----------|------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 4-Nov-2020 | 26-May-2021 | 17-Aug-2021 |
| | | | | 8C-92 | 8C-92 | 8C-92 |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 163 | 150 | 167 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | <0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 5.6 | 2.9 | 6.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.9 | 4.3 | 3.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 223 | 185 | 267 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.012 | <0.002 | 0.01 |
| Phosphorus | mg/l | -- | -- | 4.2 | 7.48 | 4.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 192 | 179 | 206 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- |
| Metals | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.032 | 0.03 | 0.032 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0018 | 0.0002 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.87 | 0.069 | 0.007 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.039 | 0.002 | < 0.001 |
| Mercury | mg/l | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4.6 | 5.1 | 5.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 365 | 381 | 440 |
| Temperature (Field) | deg c | -- | 15 | 7.7 | 9.8 | 12.3 |
| pH (Field) | - | -- | -- | 8.1 | 8.2 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G8C-92 | G8C-92 | G8C-92 | G8C-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 | 28-Oct-2022 | 03-May-23 | 14-Aug-23 |
| | | /03)-Health | AO | 8C-92 | 8C-92 | G8C-92 | G8C-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 149 | 168 | 95 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4.6 | 9 | 0.8 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | 190 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.3 | 3.3 | 2.4 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 168 | 200 | 93 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.007 | < 0.002 | 0.010 | -- |
| Phosphorus | mg/l | -- | -- | 4.56 | -- | 2.16 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 179 | 208 | 97 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.016 | 0.025 | 0.012 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 27.8 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | 0.009 | 0.073 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 5.70 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | < 0.001 | 0.001 | 0.002 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4.6 | 3.9 | 2.9 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 321 | 350 | 430 | -- |
| Temperature (Field) | deg c | -- | 15 | 9.1 | 11.1 | 5.8 | -- |
| pH (Field) | - | -- | -- | 7.6 | 7.4 | 7.28 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 01-May-1992 | 07-Sep-1992 | 28-Nov-1992 | 05-May-1993 (7) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 251 | 322 | 288 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | <1 | -- |
| Bromide | mg/l | -- | -- | <0.5 | 1.5 | 1.3 | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 19 | <3 | 5 | -- |
| Chloride | mg/l | -- | 250 | 5 | 7 | 5 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | 0.14 | 0.12 | 0.1 | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 152 | 353 | 270 | -- |
| Nitrate as N | mg/l | 10 | -- | 1.6 | <0.1 | <0.1 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.34 | 0.11 | 0.13 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.34 | 0.11 | 0.13 | -- |
| Phosphate | mg/l | -- | -- | 0.15 | 0.21 | 0.24 | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | -- |
| Sulphate | mg/l | -- | 500 (3) | 60 | 50 | 37 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 340 | 400 | 330 | -- |
| Total Organic Carbon | mg/l | -- | -- | 3 | 2.6 | 2 | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.21 | 1.22 | <0.01 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.05 | 0.08 | 0.08 | -- |
| Beryllium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | <0.01 | 0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | -- |
| Calcium, dissolved | mg/l | -- | -- | 36 | 74 | 62 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | 0.03 | <0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | 0.03 | <0.01 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.12 | 0.98 | <0.01 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | 0.002 | <0.002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 15 | 41 | 28 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.05 | 0.54 | 0.02 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | 4 | 6 | 4 | -- |
| Silicon, dissolved | mg/l | -- | -- | 4.9 | 11.2 | 5.7 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 70 | 31 | 29 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.22 | 0.38 | 0.31 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 16 | 19 | 17 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.02 | <0.1 | <0.01 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 741 | 750 | 550 | -- |
| pH (Field) | - | -- | -- | 7.2 | 7 | 6.9 | -- |
| Temperature (Field) | deg c | -- | 15 | 8 | 7 | 8 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Nov-1993 (7) | 03-Jun-1994 (7) | 09-Sep-1994 (7) | 24-Nov-1994 (7) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-----------------|-----------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 04-Jun-1995 (7) | 11-Sep-1995 (7) | 07-Nov-1995 (7) | 16-Jul-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | 318 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | 21 |
| Chloride | mg/l | -- | 250 | -- | -- | -- | 11 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | 5.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | 256 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | 404 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | 0.26 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | 0.52 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | 37 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.327 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | 770 |
| pH (Field) | - | -- | -- | -- | -- | -- | 7.2 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 21-Nov-1996 | 10-Jun-1997 | 11-Sep-1997 | 11-Jun-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 331 | 321 | 311 | 335 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | 10 | 11 | <3 |
| Chloride | mg/l | -- | 250 | 9 | 11 | 9 | 12 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.3 | 3.3 | 2.9 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 341 | 308 | 318 | 351 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 412 | 412 | 432 | 424 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | 69 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.84 | 0.33 | 0.22 | 0.54 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 33 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.16 | 0.03 | 0.19 | 0.11 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 32 | 19 | 29 | 29 |
| Strontium, dissolved | mg/l | -- | -- | 0.298 | 0.271 | 0.297 | 0.28 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 470 | 450 | 590 | 580 |
| pH (Field) | - | -- | -- | 5.4 | 7 | 6.4 | 7.3 |
| Temperature (Field) | deg c | -- | 15 | 3 | 6 | 14.5 | 12.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 19-Aug-1998 | 26-May-1999 | 31-Aug-1999 | 31-May-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 353 | 307 | 324 | 317 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 11 | <3 | 8 | 5 |
| Chloride | mg/l | -- | 250 | 12 | 14 | 14 | 11 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.1 | 2.3 | 2.2 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 275 | 314 | 355 | 317 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | 2.18 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 404 | 360 | 420 | 376 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.09 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 74 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.02 | 0.03 | 0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 32 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | 0.02 | 0.11 | 0.08 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 29 | 21 | 33 | 29 |
| Strontium, dissolved | mg/l | -- | -- | 0.272 | 0.284 | 0.277 | 0.258 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 680 | 490 | --(1) | 300 |
| pH (Field) | - | -- | -- | 7.9 | 6.87 | --(1) | 6.92 |
| Temperature (Field) | deg c | -- | 15 | 14 | 4 | --(1) | 9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Aug-2000 | 27-May-2001 | 08-Aug-2001 (6) | 03-Apr-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 281 | 327 | -- | 282 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.14 | -- | 0.1 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <4 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 15 | 20 | -- | 10 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.7 | 2 | -- | 2.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 243 | 300 | -- | 209 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | 0.01 |
| Phosphorus | mg/l | -- | -- | 1.05 | 2.23 | -- | 0.79 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 348 | 384 | -- | 382 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.07 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.03 | -- | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 56 | 69 | -- | 49 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.11 | 0.04 | -- | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 25 | 31 | -- | 21 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.09 | -- | 0.06 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 22 | 24 | -- | 28 |
| Strontium, dissolved | mg/l | -- | -- | 0.18 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 560 | 350 | -- | 600 |
| pH (Field) | - | -- | -- | 6.5 | 7.4 | -- | 7.1 |
| Temperature (Field) | deg c | -- | 15 | 12.1 | 10 | -- | 5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 06-Aug-2002 | 13-May-2003 | 26-Aug-2003 | 26-May-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 323 | 239 | 238 | 284 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.04 | 0.06 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 12 | 15 | 11 | 15.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.2 | 3.2 | 3.7 | 2.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 311 | 222 | 229 | 302 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.03 | 0.03 | 0.004 |
| Phosphorus | mg/l | -- | -- | 0.51 | 1.07 | 0.92 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 434 | 341 | 326 | 330 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.05 | <0.05 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 70 | 51 | 57 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.02 | 0.02 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 33 | 23 | 21 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.108 | 0.033 | 0.081 | 0.038 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 27 | 27 | 29 | 24.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 540 | 290 | 320 | 430 |
| pH (Field) | - | -- | -- | 7.6 | 7.3 | 7.4 | 7.79 |
| Temperature (Field) | deg c | -- | 15 | 14 | 6 | 13 | 6.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 30-Aug-2004 | 27-May-2005 | 26-Aug-2005 | 01-Jun-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 286 | 283 | 311 | 313 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | 0.22 | 0.06 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 13.3 | 16 | 16 | 15 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.3 | 3.7 | 2.6 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 353.8 | 289 | 293 | 294 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.002 | 0.03 | 0.08 | 0.04 |
| Phosphorus | mg/l | -- | -- | <0.1 | 0.03 | 0.97 | 0.44 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 296 | 402 | 434 | 421 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.04 | 0.06 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 68 | 68 | 70 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | 0.68 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 29 | 30 | 29 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.462 | 0.64 | 0.17 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 27.5 | 31 | 25 | 23 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 340 | 618 | 710 | 490 |
| pH (Field) | - | -- | -- | 7.2 | 7.3 | 7.2 | 7.5 |
| Temperature (Field) | deg c | -- | 15 | 15 | 9 | 16.9 | 12 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Sep-2006 | 31-May-2007 | 28-Aug-2007 | 02-May-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 247 | 250 | 262 | 181 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | 0.15 | <0.02 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 11 | 21 | 14 | 11 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.5 | 2.4 | 3.5 | 1.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 211 | 249 | 242 | 149 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.05 | 0.04 | 0.02 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.4 | 0.83 | 0.62 | 0.22 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 340 | 362 | 372 | 261 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | 0.03 | 0.04 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 50 | 57 | 59 | 35 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | 0.06 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 21 | 26 | 23 | 15 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.02 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25 | 25 | 24 | 21 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 710 | 370 | 400 | 265 |
| pH (Field) | - | -- | -- | 7.1 | 8 | 8.1 | 7 |
| Temperature (Field) | deg c | -- | 15 | 15 | 11.1 | 15.2 | 8.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|----------------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Aug-2008 | 14-Apr-2009 | 14-Aug-2009 | 31-May-2010 |
| | | | | | G-12-92 | 12-92 | M-5 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 247 | 218 | 252 | 268 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.02 | <0.05 | <0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 10 | 8 | 9 | 11 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.3 | 3.4 | 2.0 | 2.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 225 | 160 | 200 | 240 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.14 | 1.1 | 0.74 ⁽¹⁴⁾ | 0.6 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 333 | 295 | 335 | 360 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | <0.02 | 0.03 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 52 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.02 | <0.02 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 23 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.02 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 22 | 33.3 | 26.5 | 24.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 513 | 465 | 435 | 509 |
| pH (Field) | - | -- | -- | 7.7 | 7.6 | 7.07 | 7.10 |
| Temperature (Field) | deg c | -- | 15 | 15 | 4 | 16.3 | 15.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|------------------|-------------|
| | | ODWQS(169 | ODWQS- | 12-Aug-2010 | 28-Apr-2011 | 22-Aug-2011 (12) | 04-Jun-2012 |
| | | /03)-Health | AO | C-17 | R-1 | G12-92 | 12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 256 | 209 | -- | 1500 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | -- | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 12 | 13 | -- | 21 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.3 | 4.1 | -- | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 210 | 140 | -- | 200 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | < 0.010 | -- | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.7 | 0.91 | -- | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 330 | 294 | -- | 258 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | <0.02 | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.16 | 0.03 | -- | 0.27 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.05 | -- | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25.7 | 45.3 | -- | 25.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 499 | 460 | -- | 456 |
| pH (Field) | - | -- | -- | 6.76 | 7.37 | -- | 7.29 |
| Temperature (Field) | deg c | -- | 15 | 16.2 | 6.6 | -- | 13.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-------------|---------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 29-Aug-2012 (9) | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 |
| | | /03)-Health | AO | G12-92 | R-14 | 12-92 | 12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 220 | 250 | 240 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.12 | 0.052 | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 28 | 32 | 33 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 2.8 | 2.4 | 2.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 200 | 260 | 230 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.011 | <0.010 | 0.011 |
| Phosphorus | mg/l | -- | -- | -- | 0.82 | 0.29 | 0.49 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 330 | 340 | 308 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.02 | 0.03 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | <0.01 | 0.14 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 38.2 | 24.5 | 25 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 521 | 540 | 604 |
| pH (Field) | - | -- | -- | -- | 8.01 | 7.55 | 7.59 |
| Temperature (Field) | deg c | -- | 15 | -- | 7.0 | 14.3 | 10.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|----------------------|----------|----------------------|-------------------|----------------------|----------------------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 26-Aug-2014 12-92 | 20-May-2015 12 | 19-Aug-2015 12-92 | 30-Sep-2015 (10) G12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 210 | 200 | 200 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.096 | <0.050 | 0.059 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 35 | 41 | 63 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.9 | 3.8 | 2.2 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 210 | 210 | 270 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | -- |
| Phosphorus | mg/l | -- | -- | 0.49 | 0.79 | 0.62 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 308 | 328 | 370 | 352 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.02 | 0.03 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.77 | 0.10 | 0.94 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.14 | 0.08 | 0.56 | 0.13 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 24 | 29 | 29 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 595 | 718 | 733 | -- |
| pH (Field) | - | -- | -- | 8.34 | 7.66 | 7.65 | -- |
| Temperature (Field) | deg c | -- | 15 | 14.3 | 11.2 | 12.8 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-------------|---------|--------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 17-June-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 |
| | | /03)-Health | AO | 12-92 | 12-92 | G12-92 | 12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 273 | 170 | 252 | 233 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.01 | 0.02 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 30 | 45 | 81 |
| Chloride | mg/l | -- | 250 | 40.2 | 21.3 | 25.1 | 31.6 |
| Conductivity | µmho/c | -- | -- | -- | -- | 622 | 559 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 2.3 | 2.7 | 2.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 280 | 191 | 287 | 210 |
| Nitrate as N | mg/l | 10 | -- | -- | 0.25 | < 0.05 | 1.17 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.9 | 0.7 | 1.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.01 | 0.03 | 0.01 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.48 | 0.43 | 0.37 | 0.84 |
| Sulphate | mg/l | -- | 500 (3) | -- | 19 | 23 | 20 |
| Total Dissolved Solids | mg/l | -- | 500 | 436 | 231 | 315 | 303 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.02 | 0.06 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.016 | 0.02 | 0.018 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.032 | 0.016 | 0.039 | 0.022 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000014 | < 0.000014 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 44 | 65.9 | 49 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.002 | < 0.002 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | < 0.005 | < 0.005 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.002 | < 0.002 | 0.0007 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.028 | 0.01 | 0.008 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | < 0.00002 | < 0.00002 | 0.00005 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 19.6 | 29.7 | 21.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.242 | 0.01 | 0.117 | 0.033 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0003 | 0.0006 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | -- | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | 2.5 | 5.6 | 3.5 |
| Silicon, dissolved | mg/l | -- | -- | -- | 4.28 | 5.95 | 4.72 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.00002 | < 0.00002 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 30.5 | 22.8 | 29.7 | 38.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.15 | 0.234 | 0.177 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 7.4 | 9.9 | 6.1 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0017 | 0.0011 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 372 | 532 | 478 |
| pH (Field) | - | -- | -- | -- | 6.9 | 7.3 | 4.7 |
| Temperature (Field) | deg c | -- | 15 | -- | 6.1 | 14.3 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|-------------|------|-------------|---------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 01-May-2018 | RPD | 21-Aug-2018 | 24-April-2019 |
| | | | | 12-92 | | 12-92 | 12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 232 | 1% | 231 | 94 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | NC | < 0.01 | 0.12 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | NC | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 83 | 5% | 15 | 1300 |
| Chloride | mg/l | -- | 250 | 31.8 | 1% | 36.8 | 20.6 |
| Conductivity | µmho/c | -- | -- | 561 | 1% | 578 | 288 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 18% | 2.4 | 22.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 212 | 2% | 237 | 81 |
| Nitrate as N | mg/l | 10 | -- | 1.26 | 15% | 0.08 | 1.91 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | NC | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2 | 50% | 0.5 | 3.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0% | 0.01 | 0.39 |
| Phosphorus | mg/l | -- | -- | 0.93 | 21% | 0.25 | 1.25 |
| Sulphate | mg/l | -- | 500 (3) | 21 | 10% | 23 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | 304 | 1% | 310 | 149 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0% | 0.03 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.018 | 0% | 0.023 | 0.019 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | NC | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.021 | 9% | 0.03 | 0.013 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | NC | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 50.3 | 5% | 54.1 | 19.5 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | -- | < 0.001 | 0.005 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0015 | 229% | 0.001 | 0.0029 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | -- | < 0.005 | 0.028 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00003 | 80% | 0.00004 | 0.00014 |
| Magnesium, dissolved | mg/l | -- | -- | 21.1 | 1% | 24.8 | 7.96 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.034 | 6% | 0.001 | 0.017 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | NC | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0004 | 0% | 0.0005 | 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | NC | < 0.01 | 0.0008 |
| Potassium, dissolved | mg/l | -- | -- | 3.4 | 6% | 3.8 | 1.7 |
| Silicon, dissolved | mg/l | -- | -- | 4.77 | 2% | 5.34 | 4.62 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | NC | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 37.6 | 3% | 28.4 | 33.2 |
| Strontium, dissolved | mg/l | -- | -- | 0.177 | 0% | 0.179 | 0.092 |
| Sulfur, dissolved | mg/l | -- | -- | 6.2 | 3% | 7.4 | 2.5 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | NC | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | NC | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0002 | 0% | 0.0003 | < 0.0001 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | -- | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | -- | 0.017 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 452 | 348 |
| pH (Field) | - | -- | -- | -- | -- | 7.3 | 7.5 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 14.4 | 6.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-----------------------|----------|---------------------------|----------------------|-------------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-Sept-2019 (6) 12-92 | 26-May-2020 12-92 | 4-Nov-2020 (6) 12-92 | 26-May-2021 12-92 | 18-Aug-2021 12-92 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 160 | -- | 207 | 247 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 5.13 | -- | < 0.01 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 5 | -- | < 6 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 190 | -- | 28 | 15 |
| Chloride | mg/l | -- | 250 | -- | 51.5 | -- | 67.8 | 92.8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 8 | -- | 2.3 | 2.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 160 | -- | 251 | 324 |
| Nitrate as N | mg/l | 10 | -- | -- | 0.09 | -- | 0.1 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | 0.11 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 8.9 | -- | 0.7 | 1.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.033 | -- | 0.013 | 0.011 |
| Phosphorus | mg/l | -- | -- | -- | 4.24 | -- | 0.51 | 0.68 |
| Sulphate | mg/l | -- | 500 (3) | -- | 21 | -- | 27 | 33 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 263 | -- | 345 | 430 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.04 | -- | 0.03 | 0.2 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.046 | -- | 0.03 | 0.036 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.014 | -- | 0.022 | 0.032 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000015 | -- | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 37.3 | -- | 56 | 74.7 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | -- | 0.005 | 0.085 |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0002 | -- | 0.0002 | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0042 | -- | 0.0008 | 0.0008 |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.967 | -- | < 0.005 | 0.902 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.0001 | -- | < 0.00002 | 0.00014 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 16.2 | -- | 27 | 33.3 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.278 | -- | 0.029 | 0.169 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | -- | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0002 | -- | 0.0002 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0015 | -- | 0.0009 | 0.0012 |
| Potassium, dissolved | mg/l | -- | -- | -- | 2.4 | -- | 3 | 4.3 |
| Silicon, dissolved | mg/l | -- | -- | -- | 5.09 | -- | 4.85 | 6.8 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 30.1 | -- | 39.7 | 41.7 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.14 | -- | 0.188 | 0.232 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 5.9 | -- | 9.5 | 10.5 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | -- | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | -- | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | 0.0001 | 0.0005 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | -- | < 0.005 | < 0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | -- | <0.002 | < 0.002 |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 820 | -- | 647 | 820 |
| pH (Field) | - | -- | -- | -- | 6.9 | -- | 5.4 | 6.9 |
| Temperature (Field) | deg c | -- | 15 | -- | 14.2 | -- | 10.9 | 14.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G12-92 | G12-92 | G12-92 | G12-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|------------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 | 28-Oct-2022 | 04-May-23 | 15-Aug-23 |
| | | /03)-Health | AO | 12-92 | 12-92 | G12-92 | G12-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 200 | 256 | 160 | 219 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.01 | 0.02 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 57 | 89 | 6 | <5 |
| Chloride | mg/l | -- | 250 | 84.5 | 71.5 | 43.9 | 55.4 |
| Conductivity | umho/c | -- | -- | 0 | 753 | 479 | 0.989 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 0.3 | 1.3 | 2.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 297 | 311 | 162 | 199 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 0.05 | < 0.05 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.2 | 0.9 | 0.2 | 0.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.005 | 0.011 | 0.017 | 0.011 |
| Phosphorus | mg/l | -- | -- | 2.26 | 1.11 | 0.30 | 0.27 |
| Sulphate | mg/l | -- | 500 (3) | 31 | 30 | 24 | 15 |
| Total Dissolved Solids | mg/l | -- | 500 | 379 | 402 | 254 | 311 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | 0.05 | 0.05 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | 0.032 | 0.029 | 0.023 | 0.020 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.022 | 0.033 | 0.019 | 0.036 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | 0.000015 | < 0.000010 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 67.5 | 74 | 37.8 | 45.1 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | 0.0002 | < 0.0001 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0034 | 0.0016 | 0.0012 | 0.0025 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.228 | 0.085 | 0.070 | 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00021 | 0.00012 | 0.00004 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 31.2 | 30.7 | 16.5 | 20.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.158 | 0.12 | 0.052 | 0.011 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0003 | 0.0002 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | 0.0014 | < 0.01 | < 0.01 | 0.0012 |
| Potassium, dissolved | mg/l | -- | -- | 4 | 4.5 | 1.8 | 2.9 |
| Silicon, dissolved | mg/l | -- | -- | 5.51 | 4 | 4.04 | 5.24 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 39.5 | 37.7 | 33.8 | 46.2 |
| Strontium, dissolved | mg/l | -- | -- | 0.233 | 0.221 | 0.124 | 0.144 |
| Sulfur, dissolved | mg/l | -- | -- | 11.9 | 10.5 | 7.1 | 4.84 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0004 | 0.0005 | 0.0002 | 0.0003 |
| Zinc, dissolved | mg/l | -- | 5 | 0.017 | 0.005 | < 0.005 | 0.006 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 730 | 680 | 490 | 583 |
| pH (Field) | - | -- | -- | 9.6 | 10.5 | 7.2 | 14.8 |
| Temperature (Field) | deg c | -- | 15 | 7.2 | 7.1 | 7.16 | 7.05 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 30-Apr-1992 | 07-Sep-1992 | 27-Nov-1992 | 05-May-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 164 | 270 | 258 | 203 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.1 | 0.14 | <0.1 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | <1 | -- |
| Bromide | mg/l | -- | -- | <0.5 | 1.3 | 1 | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | 40 | 13 | 26 |
| Chloride | mg/l | -- | 250 | 4 | 2 | 6 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | 5.9 |
| Fluoride | mg/l | 1.5 | -- | 0.13 | 0.11 | 0.11 | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 261 | 394 | 356 | 257 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.16 | 0.51 | 0.13 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.16 | 0.37 | 0.13 | -- |
| Phosphate | mg/l | -- | -- | 0.11 | 0.14 | 0.13 | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 86 | 155 | 125 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 310 | 460 | 490 | 320 |
| Total Organic Carbon | mg/l | -- | -- | 3.9 | 5.1 | 6.1 | 7.1 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.08 | 0.49 | <0.01 | 0.77 |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | 0.04 | 0.04 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.1 | 0.04 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 57 | 82 | 85 | 60 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | 0.02 | 0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.09 | 1.67 | 0.1 | 0.15 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | 0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 29 | 46 | 35 | 26 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.11 | 0.31 | 0.15 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | 0.07 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 5 | 7 | 4 | 4 |
| Silicon, dissolved | mg/l | -- | -- | 2.7 | 8.3 | 4.3 | 1.1 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17 | 25 | 18 | 15 |
| Strontium, dissolved | mg/l | -- | -- | 0.13 | 0.4 | 0.35 | 0.25 |
| Sulfur, dissolved | mg/l | -- | -- | 22 | 53 | 42 | 36 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 749 | 800 | 600 | 580 |
| Temperature (Field) | deg c | -- | -- | 6 | 8 | 8 | 7 |
| pH (Field) | - | -- | 15 | 6.6 | 7.1 | 6.4 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Nov-1993 | 03-Jun-1994 | 08-Sep-1994 | 24-Nov-1994 (1) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 246 | 181 | 255 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 25 | 23 | 13 | -- |
| Chloride | mg/l | -- | 250 | 6 | 8 | 8 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.8 | 9.2 | 5.3 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 284 | 232 | 333 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 370 | 300 | 370 | -- |
| Total Organic Carbon | mg/l | -- | -- | 11 | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.03 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 66 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.09 | 0.02 | 0.2 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 29 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.14 | 0.05 | 0.16 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 5 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 3 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17 | 6 | 11 | -- |
| Strontium, dissolved | mg/l | -- | -- | <0.01 | 0.19 | 0.303 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 33 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 750 | 440 | 600 | -- |
| Temperature (Field) | deg c | -- | -- | 7 | 7.5 | 13 | -- |
| pH (Field) | - | -- | 15 | 7.2 | 7 | 7.1 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 04-Jun-1995 | 11-Sep-1995 | 07-Nov-1995 (7) | 17-Jul-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 195 | 283 | -- | 272 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 45 | 16 | -- | 16 |
| Chloride | mg/l | -- | 250 | 7 | 6 | -- | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20.7 | 6.8 | -- | 6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 240 | 348 | -- | 314 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 288 | 428 | -- | 416 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.28 | -- | 0.36 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.13 | -- | 0.24 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 15 | 26 | -- | 24 |
| Strontium, dissolved | mg/l | -- | -- | 0.2 | 0.389 | -- | 0.361 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 430 | 775 | -- | 640 |
| Temperature (Field) | deg c | -- | -- | 8 | 12 | -- | 8 |
| pH (Field) | - | -- | 15 | 7.3 | 7 | -- | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 22-Nov-1996 | 10-Jun-1997 | 09-Sep-1997 (6) | 11-Jun-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 265 | 185 | -- | 228 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 30 | 34 | -- | <3 |
| Chloride | mg/l | -- | 250 | 7 | 8 | -- | 10 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.7 | 11.2 | -- | 7.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 194 | 197 | -- | 301 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 424 | 252 | -- | 340 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 46 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.85 | 0.18 | -- | 0.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 20 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.19 | 0.04 | -- | 0.09 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 79 | 9 | -- | 16 |
| Strontium, dissolved | mg/l | -- | -- | 0.344 | 0.171 | -- | 0.27 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 440 | 290 | -- | 580 |
| Temperature (Field) | deg c | -- | -- | 6 | 4 | -- | 9 |
| pH (Field) | - | -- | 15 | 7 | 6.9 | -- | 7.05 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 19-Aug-1998 | 26-May-1999 | 30-Aug-1999 | 31-May-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 244 | 218 | 271 | 199 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 16 | 20 | 15 | 35 |
| Chloride | mg/l | -- | 250 | 9 | 10 | 9 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6 | 9.8 | 3.3 | 11.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 323 | 260 | 360 | 237 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | 1.15 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 396 | 304 | 476 | 272 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.36 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 57 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.06 | 0.08 | 0.02 | 0.14 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 23 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | 0.09 | 0.18 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 20 | 16 | 29 | 13 |
| Strontium, dissolved | mg/l | -- | -- | 0.24 | 0.266 | 0.328 | 0.161 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 630 | 420 | 480 | 510 |
| Temperature (Field) | deg c | -- | -- | 11 | 5 | 13 | 8 |
| pH (Field) | - | -- | 15 | 7.9 | 7.27 | 7 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|--------------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 18-Aug-2000 | 28-May-2001 | 08-Aug-2001 | 04-Apr-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 239 | 226 | 278 | 128 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.04 | 1.93 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 20 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 9 | 9 | 8 | 12 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.1 | 6.7 | 3 | 9.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 262 | 250 | 330 | 163 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- ⁽¹⁰⁾ | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.02 | 0.11 | 0.08 | 0.34 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 356 | 300 | 464 | 244 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.42 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.03 | 0.06 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 62 | 59 | 76 | 39 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.31 | 0.11 | 0.03 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 26 | 25 | 34 | 16 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | 0.13 | 0.2 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 14 | 13 | 28 | 8 |
| Strontium, dissolved | mg/l | -- | -- | 0.216 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 535 | 380 | -- ⁽¹⁰⁾ | 360 |
| Temperature (Field) | deg c | -- | -- | 13 | 10 | -- ⁽¹⁰⁾ | 6 |
| pH (Field) | - | -- | 15 | 7.9 | 7.5 | -- ⁽¹⁰⁾ | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 06-Aug-2002 | 13-May-2003 | 26-Aug-2003 | 26-May-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 230 | 178 | 46 | 191 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.15 | <0.02 | 0.25 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 8 | 16 | 16 | 11.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.4 | 7.4 | 16.6 | 5.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 289 | 230 | 112 | 262.7 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.02 | 0.08 | < 0.003 |
| Phosphorus | mg/l | -- | -- | 0.79 | 0.71 | 0.8 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 401 | 325 | 186 | 288 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.05 | 0.09 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 68 | 54 | 25 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.36 | 0.02 | 1.08 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 29 | 23 | 12 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.128 | <0.005 | 0.174 | 0.086 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 15 | 13 | 24 | 13.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 480 | 320 | 390 | 351 |
| Temperature (Field) | deg c | -- | -- | 15 | 7 | 12 | 7.8 |
| pH (Field) | - | -- | 15 | 7.5 | 7.1 | 7.2 | 7.46 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-2005 | 25-Aug-2005 (6) | 31-May-2006 | 07-Sep-2006 (6) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 179 | -- | 189 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | -- | 0.03 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 9 | -- | 10 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8 | -- | 6.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 154 | -- | 196 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.05 | -- | 0.02 | -- |
| Phosphorus | mg/l | -- | -- | 0.52 | -- | 0.09 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 287 | -- | 297 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | -- | 0.03 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 37 | -- | 47 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.09 | -- | 0.15 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 15 | -- | 19 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.14 | -- | 0.05 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 21 | -- | 15 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 442 | -- | 310 | -- |
| Temperature (Field) | deg c | -- | -- | 9 | -- | 12 | -- |
| pH (Field) | - | -- | 15 | 7.4 | -- | 7.1 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2007 | 28-Aug-2007 | 30-Apr-2008 | 06-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 211 | 276 | 140 | 206 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.12 | 0.05 | 0.23 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 12 | 11 | 7 | 12 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.3 | 5.2 | 6.1 | 4.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 206 | 332 | 167 | 222 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.04 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 1.26 | 1.86 | 0.16 | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 314 | 438 | 219 | 313 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.06 | 0.02 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 51 | 80 | 42 | 56 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.82 | 0.43 | <0.03 | 0.04 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 19 | 32 | 15 | 20 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.11 | 0.26 | <0.01 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 11 | 18 | 10 | 12 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 450 | 450 | 245 | 400 |
| Temperature (Field) | deg c | -- | -- | 10.1 | 11.4 | 5 | 16 |
| pH (Field) | - | -- | 15 | 7.8 | 7.2 | 5.6 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 15-Apr-2009 | 13-Aug-2009 | 31-May-2010 | 11-Aug-2010 |
| | | /03)-Health | AO | G-13-92 | 13-92 | T-3 | C-12 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 178 | 272 | 200 | 273 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | <0.05 | <0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 10 | 14 | 12 | 10 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.8 | 3.9 | 4.8 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 150 | 320 | 250 | 320 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 1.3 | 0.33 | 0.09 | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 280 | 385 | 320 | 422 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.05 | 0.05 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.06 | <0.01 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 11.8 | 14.8 | 13.1 | 18.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 380 | 594 | 490 | 600 |
| Temperature (Field) | deg c | -- | -- | 4 | 15.3 | 10.0 | 14.1 |
| pH (Field) | - | -- | 15 | 7.9 | 2.27 | 7.40 | 7.32 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 | ODWQS- | 02-May-2011 | 22-Aug-2011 (6) | 04-Jun-2012 | 29-Aug-2012 (6) |
| | | /03)-Health | AO | R-16 | G13-92 | 13-92 | G13-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 178 | -- | 200 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | -- | <0.050 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 9 | -- | 11 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.4 | -- | 5.4 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 190 | -- | 210 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | -- | < 0.010 | -- |
| Phosphorus | mg/l | -- | -- | 0.64 | -- | 0.17 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 264 | -- | 270 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | -- | 0.06 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | -- | <0.02 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | -- | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.8 | -- | 14.0 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 412 | -- | 401 | -- |
| Temperature (Field) | deg c | -- | -- | 7.2 | -- | 9.9 | -- |
| pH (Field) | - | -- | 15 | 7.83 | -- | 7.28 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 | 27-Aug-2014 |
| | | /03)-Health | AO | R-1 | G13-92 | 13-92 | 13-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 140 | 320 | 180 | 310 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | 0.071 | 0.099 | 0.061 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 9 | 20 | 11 | 15 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.2 | 5.9 | 6.2 | 5.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 160 | 350 | 160 | 310 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | <0.010 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.23 | 0.43 | 0.87 | 0.78 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 234 | 416 | 246 | 396 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.09 | 0.05 | 0.10 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | 0.05 | 0.05 | 0.45 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.02 | <0.01 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14.1 | 22.2 | 15 | 21 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 330 | 680 | 400 | 663 |
| Temperature (Field) | deg c | -- | -- | 4.4 | 14.0 | 9.8 | 14.2 |
| pH (Field) | - | -- | 15 | 7.99 | 7.29 | 7.58 | 7.51 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|--------------|-------------|
| | | ODWQS(169 | ODWQS- | 20-May-2015 | 19-Aug-2015 | 16-June-2016 | 02-May-2017 |
| | | /03)-Health | AO | 13-92 | 13-92 | 13-92 | 13-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 230 | 310 | 242 | 153 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.081 | 0.12 | -- | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 13 | 14 | 8.7 | 6.8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.1 | 5.4 | -- | 5.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 260 | 270 | 241 | 161 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | 0.014 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | 1.1 | 1.4 | -- | 0.47 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 304 | 384 | 327 | 189 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.08 | 0.088 | 0.067 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0002 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.12 | 3.5 | 0.52 | 0.835 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.11 | 0.03 | 0.018 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 21 | 21 | 20.6 | 15.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 391 | 401 | -- | 357 |
| Temperature (Field) | deg c | -- | -- | 9.4 | 12.1 | -- | 6.2 |
| pH (Field) | - | -- | 15 | 7.61 | 7.59 | -- | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|---------------|
| | | ODWQS(169 | ODWQS- | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 25-April-2019 |
| | | /03)-Health | AO | 13-92 | 13-92 | 13-92 | 13-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 314 | 225 | 313 | 173 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 10.9 | 9 | 11.9 | 14.3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.2 | 24.4 | 5 | 7.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 353 | 240 | 325 | 193 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.085 |
| Phosphorus | mg/l | -- | -- | 0.07 | 0.1 | 0.15 | 0.31 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 349 | 266 | 368 | 218 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.145 | 0.096 | 0.135 | 0.064 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 47.7 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0002 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.074 | 0.031 | 0.16 | 0.014 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 17.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.047 | 0.024 | 0.096 | 0.029 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0017 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25.8 | 20.8 | 23.9 | 15.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0005 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 581 | 413 | 502 | 465 |
| Temperature (Field) | deg c | -- | -- | 12.5 | 4.9 | 13.1 | 3.8 |
| pH (Field) | - | -- | 15 | 7.2 | 7.1 | 7.2 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-----------------------|----------|------------------|-----------|------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-Sept-2019 (6) | 27-May-20 | 5-Nov-2020 | 27-May-2021 | 18-Aug-2021 |
| | | | | 13-92 | 13-92 | 13-92 | 13-92 | 13-92 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 238 | 224 | 292 | 334 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.15 | < 0.01 | 0.05 | 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 33.5 | 44.2 | 45.8 | 54.3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 7.9 | 8.3 | 7.9 | 7.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 303 | 335 | 324 | 400 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.023 | 0.007 | <0.002 | 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.2 | 0.43 | 0.67 | 0.35 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 340 | 371 | 385 | 461 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.131 | 0.133 | 0.144 | 0.179 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0003 | 0.0003 | 0.0006 | 0.0004 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.006 | 0.489 | 0.017 | 0.245 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.033 | 0.037 | 0.056 | 0.159 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0039 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 26.4 | 27.6 | 28.6 | 30.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 661 | 653 | 711 | 880 |
| Temperature (Field) | deg c | -- | -- | -- | 10.5 | 10 | 7.5 | 13 |
| pH (Field) | - | -- | 15 | -- | 7.2 | 8 | 7.3 | 7.27 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G13-92 | G13-92 | G13-92 | G13-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 | 28-Oct-2022 | 04-May-23 | 16-Aug-23 |
| | | /03)-Health | AO | 13-92 | 13-92 | G13-92 | G13-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 330 | 256 | 391 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | < 0.01 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 84.7 | 68.1 | 112 |
| Conductivity | µmho/c | -- | -- | -- | -- | 740 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.7 | 5.9 | 7.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 422 | 324 | 473 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.002 | 0.003 | 0.007 |
| Phosphorus | mg/l | -- | -- | -- | -- | 0.12 | 0.11 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 518 | 394 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.159 | 0.146 | 0.224 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 80.7 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.8 | 0.067 | 0.035 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 29.7 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.085 | 0.030 | 0.091 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 32.1 | 31.8 | 41.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 820 | 345 | 918 |
| Temperature (Field) | deg c | -- | -- | -- | 10.7 | 9.9 | 15.3 |
| pH (Field) | - | -- | 15 | -- | 7.2 | 7.00 | 7.13 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 15-Oct-1992 | 28-Nov-1992 | 05-May-1993 | 10-Nov-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 280 | 274 | 304 | 309 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.1 | 0.15 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | <1 | -- | -- |
| Bromide | mg/l | -- | -- | <0.5 | 1.2 | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 38 | 11 | 10 | 10 |
| Chloride | mg/l | -- | 250 | <1 | 4 | <1 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 3.6 | 3.3 |
| Fluoride | mg/l | 1.5 | -- | 0.09 | 0.1 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 276 | 266 | 300 | 296 |
| Nitrate as N | mg/l | 10 | -- | 0.13 | 0.13 | 0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.41 | 0.31 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.31 | 0.16 | -- | -- |
| Phosphate | mg/l | -- | -- | <0.1 | 0.13 | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 57 | 54 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 370 | 380 | 370 | 360 |
| Total Organic Carbon | mg/l | -- | -- | 12 | 5.5 | 4.7 | 3.7 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | 0.07 | 0.76 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.06 | 0.04 | 0.03 | 0.03 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | <0.01 | <0.01 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 61 | 62 | 69 | 71 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | 0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.19 | <0.01 | 0.03 | 0.56 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 30 | 27 | 31 | 29 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.37 | 0.12 | 0.39 | 0.33 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 5 | 4 | 3 | 3 |
| Silicon, dissolved | mg/l | -- | -- | 5.2 | 6 | 1.6 | 5 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25 | 26 | 16 | 17 |
| Strontium, dissolved | mg/l | -- | -- | 0.23 | 0.24 | 0.23 | <0.01 |
| Sulfur | mg/l | -- | -- | 21 | 21 | 16 | 15 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.003 | <0.002 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 550 | 550 | 580 | 750 |
| Temperature (Field) | deg c | -- | 15 | 6 | 7 | 6 | 7 |
| pH (Field) | - | -- | -- | 6.6 | 7 | 6.4 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 03-Jun-1994 | 09-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 269 | 337 | -- | 168 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 10 | 10 | -- | 7 |
| Chloride | mg/l | -- | 250 | 2 | 2 | -- | <1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 2.7 | -- | 1.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 270 | 362 | -- | 170 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 340 | 390 | -- | 204 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | 0.31 | -- | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.12 | 0.32 | -- | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 15 | 14 | -- | 19 |
| Strontium, dissolved | mg/l | -- | -- | 0.21 | 0.292 | -- | 0.132 |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 500 | 625 | -- | 300 |
| Temperature (Field) | deg c | -- | 15 | 6.5 | 12 | -- | 9.5 |
| pH (Field) | - | -- | -- | 7 | 7 | -- | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1995 | 07-Nov-1995 (7) | 16-Jul-1996 | 21-Nov-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 319 | -- | 315 | 302 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | -- | 8 | 11 |
| Chloride | mg/l | -- | 250 | 1 | -- | 2 | 1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3 | -- | 3.2 | 2.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 310 | -- | 293 | 318 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 372 | -- | 372 | 344 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.17 | -- | 0.19 | 1.31 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.23 | -- | 0.37 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 19 | -- | 17 | 18 |
| Strontium, dissolved | mg/l | -- | -- | 0.288 | -- | 0.285 | 0.24 |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 675 | -- | 650 | 380 |
| Temperature (Field) | deg c | -- | 15 | 16 | -- | 9 | 7 |
| pH (Field) | - | -- | -- | 7 | -- | 7.4 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Jun-1997 | 11-Sep-1997 | 11-Jun-1998 | 19-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 315 | 305 | 337 | 258 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | 11 | <3 | 5 |
| Chloride | mg/l | -- | 250 | 2 | 2 | 3 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.5 | 3.4 | 3.4 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 295 | 300 | 344 | 330 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 384 | 384 | 384 | 396 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 67 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.31 | 0.48 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 31 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.21 | 0.17 | 0.52 | 0.09 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 16 | 21 | 21 | 21 |
| Strontium, dissolved | mg/l | -- | -- | 0.254 | 0.265 | 0.261 | 0.299 |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 385 | 530 | 530 | 670 |
| Temperature (Field) | deg c | -- | 15 | 4 | 14.5 | 11.5 | 11 |
| pH (Field) | - | -- | -- | 7.1 | 7.6 | 6.6 | 7.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-1999 | 31-Aug-1999 | 31-May-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 352 | 344 | 323 | 345 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 12 | 8 | 10 | 8 |
| Chloride | mg/l | -- | 250 | 2 | 2 | 1 | 1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.8 | 2.3 | 3 | 1.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 344 | 350 | 317 | 310 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 0.06 | 0.01 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 368 | 384 | 336 | 388 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.1 | 0.37 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 74 | 73 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | 0.07 | 0.56 | 0.3 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 32 | 31 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.34 | 0.28 | 0.08 | 0.06 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 19 | 23 | 17 | 16 |
| Strontium, dissolved | mg/l | -- | -- | 0.28 | 0.249 | 0.179 | 0.234 |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 490 | -- (11) | 320 | 606 |
| Temperature (Field) | deg c | -- | 15 | 5 | -- (11) | 8 | 17.3 |
| pH (Field) | - | -- | -- | 7.24 | -- (11) | 6.89 | 7.49 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 | 08-Aug-2001 (6) | 03-Apr-2002 | 06-Aug-2002 (6) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 286 | -- | 267 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | -- | 0.04 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 1 | -- | 1 | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.5 | -- | 1.3 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 273 | -- | 250 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | < 0.01 | -- |
| Phosphorus | mg/l | -- | -- | 0.18 | -- | 0.11 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 304 | -- | 356 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.01 | -- | <0.05 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 63 | -- | 59 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.28 | -- | 1.12 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 28 | -- | 25 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.18 | -- | 0.13 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | -- | 19 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 320 | -- | 385 | -- |
| Temperature (Field) | deg c | -- | 15 | 9.5 | -- | 6 | -- |
| pH (Field) | - | -- | -- | 7.5 | -- | 7.1 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 13-May-2003 | 26-Aug-2003 (7) | 26-May-2004 | 27-May-2005 (6) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 166 | -- | 348 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | -- | <0.03 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | -- | 2.8 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | -- | 2.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 172 | -- | 616.4 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.06 | -- | < 0.003 | -- |
| Phosphorus | mg/l | -- | -- | 0.2 | -- | 0.1 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 246 | -- | 416 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.05 | -- | 0.01 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 39 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.23 | -- | 0.78 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 18 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.288 | -- | 0.434 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 11 | -- | 19.8 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 210 | -- | 481 | -- |
| Temperature (Field) | deg c | -- | 15 | 6 | -- | 9.1 | -- |
| pH (Field) | - | -- | -- | 7 | -- | 7.32 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 25-Aug-2005 (6) | 01-Jun-2006 | 07-Sep-2006 | 28-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 408 | 457 | 372 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.02 | 0.23 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 4 | 6 | 9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.1 | 6.5 | 3.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 430 | 491 | 417 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.08 | 0.08 | 0.06 |
| Phosphorus | mg/l | -- | -- | -- | 0.69 | 1.12 | 0.15 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 561 | 645 | 519 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.02 | 0.04 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 103 | 116 | 96 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 1.78 | 2.11 | 0.61 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 42 | 49 | 43 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.35 | 0.48 | 0.21 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 20 | 23 | 16 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 600 | 600 | 575 |
| Temperature (Field) | deg c | -- | 15 | -- | 9 | 15 | 9.3 |
| pH (Field) | - | -- | -- | -- | 6.7 | 7.1 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-------------|------------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-Aug-2007 (6) | 01-May-2008 | 06-Aug-2008 | 15-Apr-2009 G-17-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 237 | 252 | 195 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.04 | 0.04 | 0.21 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 8 | 4 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3 | 6.3 | 3.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 327 | 191 | 110 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.02 | 0.04 | < 0.010 |
| Phosphorus | mg/l | -- | -- | -- | 0.3 | 0.39 | 0.50 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 378 | 324 | 285 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.01 | <0.01 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 78 | 47 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.94 | <0.03 | 3.53 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 32 | 18 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.33 | 0.05 | 0.21 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 16 | 28 | 13.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 390 | 465 | 460 |
| Temperature (Field) | deg c | -- | 15 | -- | 4 | 16 | 5 |
| pH (Field) | - | -- | -- | -- | 6.9 | 7.3 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | | G17-92 | |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Aug-2009 (6) | 27-May-2010 | 11-Aug-2010 (6) | 29-Apr-2011 |
| | | | | G17-92 | T-1 | G17-92 | R-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 447 | -- | 146 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.05 | -- | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 7 | -- | 5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 2.7 | -- | 2.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 530 | -- | 320 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.03 | -- | 0.03 |
| Phosphorus | mg/l | -- | -- | -- | 0.24 | -- | 0.7 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 674 | -- | 396 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.03 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | 1.45 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.23 | -- | 0.20 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 23.7 | -- | 22.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1041 | -- | 463 |
| Temperature (Field) | deg c | -- | 15 | -- | 13.2 | -- | 6.3 |
| pH (Field) | - | -- | -- | -- | 7.10 | -- | 7.47 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | | G17-92 | |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 22-Aug-2011 (6) | 04-Jun-2012 | 29-Aug-2012 (6) | 23-Apr-2013 |
| | | | | G17-92 | 17-92 | G17-92 | R-12 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 240 | -- | 240 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | -- | 0.099 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 11 | -- | 20 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.7 | -- | 3.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 240 | -- | 240 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.010 | -- | 0.015 |
| Phosphorus | mg/l | -- | -- | -- | 0.57 | -- | 0.86 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 312 | -- | 390 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 1.04 | -- | 0.22 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.14 | -- | 0.16 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 18.0 | -- | 15.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | 679 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | 7.5 |
| pH (Field) | - | -- | -- | -- | -- | -- | 7.84 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | | G17-92 | |
|----------------------------------|--------|-----------------------|----------|---------------------------|----------------------|-----------------------------|-------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 06-Sep-2013 (P) G17-92 | 12-May-2014 17-92 | 26-Aug-2014 (15=2) 17-92 | 20-May-2015 17 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 240 | -- | 180 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | -- | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 28 | -- | 26 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.6 | -- | 5.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 180 | -- | 160 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.010 | -- | 0.012 |
| Phosphorus | mg/l | -- | -- | -- | 0.37 | -- | 0.20 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 412 | -- | 334 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 3.8 | -- | 0.26 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.17 | -- | 0.07 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 23 | -- | 20 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 572 | -- | 666 |
| Temperature (Field) | deg c | -- | 15 | -- | 9.2 | -- | 9.7 |
| pH (Field) | - | -- | -- | -- | 7.07 | -- | 7.18 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|------------------|--------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Jun-2015 | 19-Aug-2015 (6) | 16-June-2016 (6) | 22-August-2016 (6) |
| | | | | 17 | G17-92 | G17-92 | G17-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 610 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 708 | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 10.1 | -- | -- | -- |
| pH (Field) | - | -- | -- | 7.25 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G17-92 | | G17-92 | |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | | | G17-92 | G17-92 | G17-92 | G17-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 162 | 414 | 204 | 267 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.03 | 0.02 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 18.1 | 31.4 | 4.7 | 12.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20.5 | 6.9 | 4 | 6.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 201 | 530 | 236 | 298 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.41 | 0.33 | 0.83 | 0.68 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 233 | 515 | 233 | 328 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.016 | 0.042 | 0.009 | 0.031 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.609 | 1.76 | 0.028 | 1.26 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.08 | 0.219 | 0.106 | 0.201 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.4 | 26.4 | 9.4 | 15 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 452 | 794 | 339 | 405 |
| Temperature (Field) | deg c | -- | 15 | 6.4 | 14.7 | 6 | 16.4 |
| pH (Field) | - | -- | -- | 7 | 7.1 | 7.1 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G17-92 | G17-92 | G17-92 | G17-92 | G17-92 | G17-92 |
|----------------------------------|--------|-------------|---------|---------------|--------------|-----------------|------------|-----------------|-------------|
| | | ODWQS(169 | ODWQS- | 25-April-2019 | 26-Sept-2019 | 27-May-2020 (6) | 5-Nov-2020 | 27-May-2021 (6) | 18-Aug-2021 |
| | | /03)-Health | AO | G17-92 | G17-92 | G17-92 | G17-92 | G17-92 | G17-92 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 147 | 233 | -- | 112 | -- | 206 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.13 | 0.29 | -- | 0.01 | -- | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 33.4 | 24.7 | -- | 130 | -- | 669 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12.7 | 10.3 | -- | 4.8 | -- | 19.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 165 | 298 | -- | 323 | -- | 1020 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.141 | 0.357 | -- | 0.014 | -- | 0.021 |
| Phosphorus | mg/l | -- | -- | 0.48 | 0.68 | -- | 2.49 | -- | 3.03 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 215 | 320 | -- | 387 | -- | 1368 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.027 | 0.045 | -- | 0.045 | -- | 0.158 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 48.9 | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0007 | -- | -- | 0.0061 | -- | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.62 | 0.736 | -- | 7.89 | -- | 0.515 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 10.3 | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.991 | 0.717 | -- | 0.245 | -- | 0.101 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0011 | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 15.4 | 16.3 | -- | 47.9 | -- | 87.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0004 | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 429 | 528 | -- | 790 | -- | 2520 |
| Temperature (Field) | deg c | -- | 15 | 5.9 | 17.2 | -- | 10.5 | -- | 15.6 |
| pH (Field) | - | -- | -- | 7.9 | 7.52 | -- | 8.5 | -- | 6.82 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G17-92 | | G17-92 | |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-----------|-----------|
| | | | | 31-May-2022 | 28-Oct-2022 | 05-May-23 | 16-Aug-23 |
| | | | | G17-92 | G17-92 | G17-92 | G17-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 180 | 214 | 182 | 267 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.2 | 0.01 | < 0.01 | 0.09 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 457 | 538 | 81.1 | 296 |
| Conductivity | µmho/c | -- | -- | -- | -- | 645 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.4 | < 0.2 | 4.2 | 2.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 699 | 807 | 241 | 574 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.011 | 0.015 | 0.031 | 0.010 |
| Phosphorus | mg/l | -- | -- | 5.74 | -- | 0.29 | 8.98 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 983 | 1205 | 340 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.219 | 0.188 | 0.158 | 0.253 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 84.2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.23 | 0.199 | 0.710 | 1.67 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 7.48 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.094 | 0.051 | 0.161 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 96.9 | 76.3 | 33.0 | 50.1 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2060 | 1730 | 602 | 1284 |
| Temperature (Field) | deg c | -- | 15 | 8.8 | 11.6 | 10.0 | 17.7 |
| pH (Field) | - | -- | -- | 7.2 | 6.76 | 7.26 | 7.06 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 12-Oct-1992 | 27-Nov-1992 | 05-May-1993 | 10-Nov-1993 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 162 | 90 | 209 | 163 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.67 | 0.22 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 3 | <1 | -- | -- |
| Bromide | mg/l | -- | -- | <0.5 | 0.9 | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 33 | 8 | 16 | 15 |
| Chloride | mg/l | -- | 250 | 35 | 18 | 23 | 19 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 7.1 | 4.9 |
| Fluoride | mg/l | 1.5 | -- | 0.09 | 0.09 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 304 | 129 | 281 | 198 |
| Nitrate as N | mg/l | 10 | -- | 0.38 | 2.4 | 2 | 0.23 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | 0.15 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.71 | 0.4 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.04 | 0.18 | -- | -- |
| Phosphate | mg/l | -- | -- | 0.36 | 0.21 | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | 125 | 41 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 400 | 230 | 400 | 300 |
| Total Organic Carbon | mg/l | -- | -- | 10 | 3.7 | 7.5 | 5.6 |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 3.95 | <0.01 | 1.16 | <0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.1 | 0.04 | 0.12 | 0.06 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | 0.33 | 0.1 | 0.26 | 0.22 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Calcium, dissolved | mg/l | -- | -- | 79 | 35 | 78 | 53 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Copper, dissolved | mg/l | -- | 1 | <0.01 | <0.01 | <0.01 | <0.01 |
| Iron, dissolved | mg/l | -- | 0.3 | 13.1 | 0.64 | 12.3 | 0.28 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.002 | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 26 | 10 | 21 | 16 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.69 | 0.37 | 2.18 | 0.95 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 6 | 2 | 9 | 6 |
| Silicon, dissolved | mg/l | -- | -- | 17.9 | 3.8 | 2.2 | 4.7 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25 | 6 | 20 | 17 |
| Strontium, dissolved | mg/l | -- | -- | 0.41 | 0.2 | 0.45 | 0.3 |
| Sulfur, dissolved | mg/l | -- | -- | 44 | 14 | 34 | 27 |
| Thallium, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | <0.002 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 625 | 330 | 630 | 675 |
| Temperature (Field) | deg c | -- | 15 | 7 | 8 | 4 | 4.5 |
| pH (Field) | - | -- | -- | 6.2 | 6.2 | 5.8 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 03-Jun-1994 | 08-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 164 | 222 | -- | 112 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 15 | 30 | -- | 13 |
| Chloride | mg/l | -- | 250 | 15 | 19 | -- | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.1 | 11.9 | -- | 5.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 223 | 322 | -- | 125 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 330 | 370 | -- | 180 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.16 | 0.95 | -- | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.27 | 2.29 | -- | 0.16 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12 | 16 | -- | 12 |
| Strontium, dissolved | mg/l | -- | -- | 0.35 | 0.451 | -- | 0.194 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 445 | 575 | -- | 210 |
| Temperature (Field) | deg c | -- | 15 | 8 | 14 | -- | 12 |
| pH (Field) | - | -- | -- | 6.9 | 6.4 | -- | 6.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1995 | 07-Nov-1995 (7) | 16-Jul-1996 | 21-Nov-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 208 | -- | 191 | 153 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 30 | -- | 29 | 22 |
| Chloride | mg/l | -- | 250 | 14 | -- | 9 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 11.2 | -- | 12.1 | 7.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 263 | -- | 195 | 207 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 368 | -- | 296 | 264 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 2.18 | -- | 1.78 | 2.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.3 | -- | 1.47 | 1.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 21 | -- | 17 | 16 |
| Strontium, dissolved | mg/l | -- | -- | 0.456 | -- | 0.367 | 0.305 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 650 | -- | 450 | 300 |
| Temperature (Field) | deg c | -- | 15 | 12 | -- | 12 | 5 |
| pH (Field) | - | -- | -- | 7 | -- | 6.9 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Jun-1997 | 10-Sep-1997 | 11-Jun-1998 | 20-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 114 | 155 | 300 | 274 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 18 | 16 | 47 | 38 |
| Chloride | mg/l | -- | 250 | 9 | 15 | 9 | 8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.2 | 9.1 | 20 | 12 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 133 | 175 | 325 | 294 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 220 | 280 | 392 | 376 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 35 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.64 | 2.42 | 1.22 | 1.14 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 11 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.15 | 1.59 | 3.37 | 2.49 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 10 | 18 | 21 | 24 |
| Strontium, dissolved | mg/l | -- | -- | 0.203 | 0.265 | 0.456 | 0.418 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 240 | 420 | 410 | 680 |
| Temperature (Field) | deg c | -- | 15 | 5 | 15 | 10.5 | 13 |
| pH (Field) | - | -- | -- | 7.1 | 6.9 | 6.54 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 25-May-1999 | 30-Aug-1999 | 02-Jun-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 253 | 197 | 223 | 171 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 34 | 45 | 33 | 10 |
| Chloride | mg/l | -- | 250 | 9 | 11 | 8 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.9 | 9.8 | 9.9 | 4.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 286 | 255 | 241 | 155 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 1.4 | 0.02 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 376 | 364 | 308 | 232 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.17 | 0.2 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 65 | 44 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.48 | 1.1 | 1.26 | 0.42 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 19 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.81 | 1.35 | 0.91 | 0.34 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 19 | 23 | 17 | 12 |
| Strontium, dissolved | mg/l | -- | -- | 1.12 | 0.334 | 0.348 | 0.211 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 610 | 390 | 410 | 369 |
| Temperature (Field) | deg c | -- | 15 | 9 | 13 | 9 | 17.8 |
| pH (Field) | - | -- | -- | 6.5 | 7.15 | 7.08 | 6.62 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 | 16-Oct-2001 | 04-Apr-2002 | 07-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 200 | 187 | 124 | 293 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.4 | 0.85 | 0.22 | 0.94 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 6 | 7 | 6 | 9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.3 | 9.2 | 6.2 | 11 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 217 | 193 | 138 | 283 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.72 | 1.31 | 1.07 | 0.9 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 320 | 276 | 215 | 400 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.19 | 0.4 | 0.07 | 0.17 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 59 | 51 | 37 | 77 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 2.27 | 1.83 | 0.53 | 4.06 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 17 | 16 | 11 | 22 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.82 | 0.74 | 0.46 | 2.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12 | 16 | 7 | 18 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 200 | 410 | 290 | 320 |
| Temperature (Field) | deg c | -- | 15 | 15 | 12 | 6 | 16 |
| pH (Field) | - | -- | -- | 6.6 | 7.4 | 6.4 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 14-May-2003 | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 162 | 232 | 177 | 223 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | 0.26 | 0.43 | 0.34 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 15 | 9 | 5.8 | 8.1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.6 | 8.8 | 9.5 | 9.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 194 | 261 | 232.6 | 296.6 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.05 | < 0.003 | < 0.003 |
| Phosphorus | mg/l | -- | -- | 0.99 | 0.58 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 277 | 395 | 336 | 394 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.1 | 0.21 | 0.16 | 0.22 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 53 | 70.7 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.98 | 2.28 | 0.59 | 2.19 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 15 | 20.5 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.373 | 1.54 | 0.685 | 1.24 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 10 | 15.1 | 10.5 | 15.7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 380 | 410 | 389 | 500 |
| Temperature (Field) | deg c | -- | 15 | 6 | 15 | 8.7 | 14 |
| pH (Field) | - | -- | -- | 7.1 | 7.3 | 7.5 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-May-2005 | 26-Aug-2005 | 31-May-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 115 | 260 | 126 | 117 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.12 | 0.31 | 0.06 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 7 | 6 | 6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4 | 10.3 | 3.3 | 3.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 178 | 335 | 144 | 137 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.11 | 0.04 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.17 | 0.51 | 0.45 | 0.15 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 227 | 444 | 227 | 214 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.13 | 0.29 | 0.11 | 0.18 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 50 | 93 | 41 | 40 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.15 | 0.79 | <0.03 | 0.54 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 13 | 25 | 10 | 9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 1.11 | 0.05 | 0.36 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 7 | 20 | 7 | 7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 349 | 600 | 280 | 660 |
| Temperature (Field) | deg c | -- | 15 | 8 | 15.6 | 12 | 14 |
| pH (Field) | - | -- | -- | 7.1 | 6.6 | 6.5 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2007 | 28-Aug-2007 | 30-Apr-2008 | 06-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 195 | 261 | 48 | 138 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.53 | 0.21 | 0.03 | 0.14 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 5 | 2 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6 | 10 | 1.9 | 4.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 199 | 285 | 85 | 141 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.16 | 0.02 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.07 | 0.24 | 0.06 | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 296 | 389 | 96 | 205 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.18 | 0.29 | 0.05 | 0.14 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 60 | 86 | 24 | 40 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | 0.64 | 0.17 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 12 | 17 | 6 | 10 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.05 | 0.36 | 0.11 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 6 | 15 | 3 | 7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 500 | 800 | 110 | 250 |
| Temperature (Field) | deg c | -- | 15 | 9.4 | 14.8 | 3 | 18 |
| pH (Field) | - | -- | -- | 7.8 | 7.6 | 5.2 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 13-Apr-2009 | 14-Aug-2009 | 31-May-2010 | 11-Aug-2010 |
| | | /03)-Health | AO | G-18-92 | 18-92 | T-2 | C-13 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 100 | 204 | 213 | 212 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | 0.08 | 0.07 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2 | 4 | 5 | 5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 5.7 | 5.9 | 5.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 130 | 250 | 250 | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.13 | 0.37 | 0.19 | 0.13 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 130 | 340 | 320 | 284 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.21 | 0.20 | 0.20 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.07 | 0.06 | 0.04 | 0.08 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | 0.09 | 0.15 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5.1 | 10.9 | 9.4 | 9.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 190 | 474 | 244 | 385 |
| Temperature (Field) | deg c | -- | 15 | 2 | 16.8 | 10.9 | 18.3 |
| pH (Field) | - | -- | -- | 7.5 | 6.65 | 6.81 | 7.58 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | | G18-92 | |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 02-May-2011 | 23-Aug-2011 | 04-Jun-2012 | 23-Apr-2013 |
| | | | | R-15 | G18-92 | 18-92 | R-2 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 108 | 223 | 120 | 99 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | 0.055 | 0.11 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2 | 4 | 5 | 2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.3 | 5.9 | 2.5 | 1.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 110 | 260 | 120 | 120 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.080 | 0.33 | 0.085 | 0.071 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 168 | 344 | 162 | 96 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.07 | 0.24 | 0.10 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | 0.06 | 0.01 | 0.06 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3.5 | 11.2 | 4.4 | 4.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 346 | 480 | 255 | 159 |
| Temperature (Field) | deg c | -- | 15 | 7.5 | 15.1 | 12.2 | 2.9 |
| pH (Field) | - | -- | -- | 7.41 | 6.76 | 6.87 | 7.43 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|-----------------------|----------|---------------------------|----------------------|----------------------|-------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 06-Sep-2013 (3) G18-92 | 12-May-2014 18-92 | 26-Aug-2014 18-92 | 20-May-2015 18 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 58 | 200 | 140 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | 0.31 | 0.10 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 4 | 5 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 1.7 | 3.8 | 3.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 82 | 220 | 180 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.010 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | -- | 0.10 | 0.54 | 0.12 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 122 | 354 | 272 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.05 | 0.18 | 0.12 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | <0.02 | 0.04 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | <0.01 | 0.05 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 2.7 | 7.5 | 4.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 216 | 708 | 309 |
| Temperature (Field) | deg c | -- | 15 | -- | 8.6 | 14.8 | 9.1 |
| pH (Field) | - | -- | -- | -- | 7.51 | 7.21 | 7.56 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|--------------|--------------|
| | | | | 19-Aug-2015 | 30-Sep-2015 | 16-June-2016 | 16-June-2016 |
| | | | | 18-92 | G18-92 | G18-92 | DUP |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 220 | -- | 272 | 250 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | -- | 0.13 | 0.17 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4.4 | -- | 5.2 | 5.3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.0 | -- | 5.1 | 4.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 240 | -- | 269 | 270 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | -- | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.27 | -- | 1.8 | 5.68 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 358 | 318 | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.19 | -- | 0.159 | 0.158 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0003 | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.82 | -- | 0.378 | 0.38 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.29 | 0.04 | 0.582 | 0.597 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 8.4 | -- | 17.3 | 17.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 304 | 639 | 442 | -- |
| Temperature (Field) | deg c | -- | 15 | 11.9 | 12.2 | 12.4 | -- |
| pH (Field) | - | -- | -- | 7.60 | 7.99 | 7.1 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | RPD | G18-92 | G18-92 | RPD |
|----------------------------------|--------|-----------------------|----------|------|-------------|-------------|-----|
| | | ODWQS(169 /03)-Health | ODWQS-AO | | 23-Aug-2016 | 23-Aug-2016 | |
| | | | | | G18-92 | DUP | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 8% | 231 | 235 | 2% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 27% | < 0.01 | < 0.01 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2% | 4.7 | 4.4 | 8% |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4% | 5.4 | 6.1 | 8% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 0% | 281 | 288 | 8% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | NC | < 0.01 | < 0.01 | NC |
| Phosphorus | mg/l | -- | -- | 104% | 1.42 | 1.55 | 8% |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 374 | 372 | 8% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1% | 0.241 | 0.242 | 8% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0% | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1% | 0.07 | 0.084 | 8% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 3% | 0.287 | 0.415 | 8% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 0% | 13.7 | 15.2 | 8% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 561 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 13.2 | -- | -- |
| pH (Field) | - | -- | -- | -- | 6.7 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | | | G18-92 | G18-92 | G18-92 | G18-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 60 | 171 | 111 | 233 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | 0.08 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 14 | 50 | 82 | 51 |
| Chloride | mg/l | -- | 250 | 3.3 | 5.2 | 7.9 | 12 |
| Conductivity | µmho/c | -- | -- | -- | 444 | 334 | 602 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.8 | 4.2 | 2.4 | 5.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 77 | 224 | 165 | 293 |
| Nitrate as N | mg/l | 10 | -- | 1.8 | 3.11 | 2.39 | 1.21 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.45 | 1.1 | 0.9 | 1.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.01 | 0.04 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.23 | 0.99 | 1.48 | 0.89 |
| Sulphate | mg/l | -- | 500 (3) | 11 | 38 | 33 | 64 |
| Total Dissolved Solids | mg/l | -- | 500 | 83.1 | 216 | 174 | 336 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | < 0.01 | 0.05 | 0.03 | 0.05 |
| Barium, dissolved | mg/l | 1 | -- | 0.019 | 0.043 | 0.034 | 0.058 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.052 | 0.179 | 0.107 | 0.26 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000014 | 0.000028 | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 21.9 | 63.7 | 47.2 | 84.2 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.002 | < 0.002 | 0.003 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.005 | 0.0001 | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | < 0.002 | 0.0003 | 0.0011 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.024 | 0.083 | 0.088 | 0.051 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | 0.00002 | < 0.00002 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 5.43 | 15.8 | 11.5 | 20 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.039 | 0.195 | 0.059 | 0.044 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.04 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2.1 | 5.1 | 3.5 | 5.9 |
| Silicon, dissolved | mg/l | -- | -- | 4.8 | 8.67 | 4.93 | 7.39 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | 7.9 | 4.5 | 10.3 |
| Strontium, dissolved | mg/l | -- | -- | 0.12 | 0.319 | 0.248 | 0.427 |
| Sulfur, dissolved | mg/l | -- | -- | 4.3 | 15.2 | 9.8 | 21.8 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0009 | 0.0011 | 0.0002 | 0.0003 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | -- | < 0.01 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 161 | 382 | 777 | 443 |
| Temperature (Field) | deg c | -- | 15 | 6 | 14.2 | 4.7 | 16.4 |
| pH (Field) | - | -- | -- | 6.6 | 6.7 | 6.8 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | Dup. | | G18-92 | Dup. | | G18-92 |
|----------------------------------|--------|-----------------------|----------|--------------------|---------|-------------------------|----------------------|------|------------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 21-Aug-2018 G46 | RPD | 25-April-2019 G18-92 | 25-April-2019 G46 | RPD | 26-Sept-2019 G18-92 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 223 | 4% | 50 | 74 | 39% | 630 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | NC | 0.06 | 0.06 | 0% | 0.28 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | NC | < 3 | < 3 | NC | 5 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 44 | 15% | 27 | 18 | 40% | 144 |
| Chloride | mg/l | -- | 250 | 12.6 | 5% | 2.3 | 2.9 | 23% | 47.7 |
| Conductivity | umho/c | -- | -- | 601 | 0% | 241 | 241 | 0% | 1313 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.1 | 38% | 8.2 | 14.9 | 58% | 26.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 298 | 2% | 163 | 160 | 2% | 782 |
| Nitrate as N | mg/l | 10 | -- | 1.38 | 13% | 3.4 | 3.13 | 8% | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | NC | < 0.05 | < 0.05 | NC | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.5 | 7% | 0.5 | 0.7 | 33% | 2.7 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | NC | 0.071 | 0.103 | 37% | 1.22 |
| Phosphorus | mg/l | -- | -- | 1 | 12% | 0.15 | 0.19 | 24% | 2.23 |
| Sulphate | mg/l | -- | 500 (3) | 63 | 2% | 7 | 9 | 25% | 14 |
| Total Dissolved Solids | mg/l | -- | 500 | 333 | 1% | 106 | 121 | 13% | 741 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.05 | 0% | 0.03 | 0.02 | 40% | 0.1 |
| Barium, dissolved | mg/l | 1 | -- | 0.057 | 2% | 0.03 | 0.03 | 0% | 0.061 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | NC | < 0.0001 | < 0.0001 | NC | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.259 | 0% | 0.083 | 0.087 | 5% | 0.321 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | NC | 0.000022 | 0.000022 | 0% | 0.000024 |
| Calcium, dissolved | mg/l | -- | -- | 85.6 | 2% | 45.6 | 44.8 | 2% | 230 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | NC | < 0.001 | < 0.001 | NC | 0.004 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0004 | 29% | 0.0003 | 0.0003 | 0% | 0.0018 |
| Copper, dissolved | mg/l | -- | 1 | 0.0007 | 44% | 0.0006 | 0.0028 | 129% | 0.0054 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.062 | 19% | 0.387 | 0.433 | 11% | 0.137 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | NC | < 0.00002 | 0.00019 | NC | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 20.5 | 2% | 12 | 11.8 | 2% | 50.4 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.079 | 57% | 0.485 | 0.47 | 3% | 0.443 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | NC | < 0.00002 | < 0.00002 | NC | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | NC | < 0.0001 | < 0.0001 | NC | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | NC | 0.0012 | 0.0013 | 8% | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 5.8 | 2% | 3 | 3 | 0% | 7.3 |
| Silicon, dissolved | mg/l | -- | -- | 7.51 | 2% | 3.81 | 3.8 | 0% | 7.66 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | NC | < 0.0001 | < 0.0001 | NC | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 10.9 | 6% | 4.3 | 4.3 | 0% | 12.5 |
| Strontium, dissolved | mg/l | -- | -- | 0.432 | 1% | 0.234 | 0.23 | 2% | 0.905 |
| Sulfur, dissolved | mg/l | -- | -- | 23.4 | 7% | 3.6 | 3.6 | 0% | 4.8 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | #VALUE! | < 0.00005 | < 0.00005 | NC | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | NC | < 0.005 | < 0.005 | NC | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0003 | 0% | 0.0001 | 0.0001 | 0% | 0.001 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | NC | < 0.005 | 0.005 | NC | < 0.005 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.01 | NC | < 0.002 | < 0.002 | NC | < 0.002 |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 163 | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 5.1 | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | 6.3 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | Dup. | RPD |
|----------------------------------|--------|-----------------------|----------|------------------|------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-Sept-2019 G46 | |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 628 | 0% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.69 | 85% |
| Bicarbonate | mg/l | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 3 | NC |
| Bromide | mg/l | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 217 | 40% |
| Chloride | mg/l | -- | 250 | 47.7 | 0% |
| Conductivity | µmho/c | -- | -- | 1318 | 0% |
| Dissolved Organic Carbon | mg/l | -- | 5 | 26.4 | 1% |
| Fluoride | mg/l | 1.5 | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 788 | 1% |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | NC |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | NC |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.1 | 14% |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 4.25 | 111% |
| Phosphorus | mg/l | -- | -- | 5.77 | 89% |
| Sulphate | mg/l | -- | 500 (3) | 13 | 7% |
| Total Dissolved Solids | mg/l | -- | 500 | 742 | 0% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.1 | 0% |
| Barium, dissolved | mg/l | 1 | -- | 0.061 | 0% |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | NC |
| Boron, dissolved | mg/l | 5 | -- | 0.323 | 1% |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.00028 | 15% |
| Calcium, dissolved | mg/l | -- | -- | 232 | 1% |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.007 | NC |
| Cobalt, dissolved | mg/l | -- | -- | 0.0017 | 6% |
| Copper, dissolved | mg/l | -- | 1 | 0.0054 | 0% |
| Iron, dissolved | mg/l | -- | 0.3 | 0.154 | 12% |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | NC |
| Magnesium, dissolved | mg/l | -- | -- | 50.7 | 1% |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.452 | 2% |
| Mercury | mg/l | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | NC |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0004 | NC |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | NC |
| Potassium, dissolved | mg/l | -- | -- | 7.4 | 1% |
| Silicon, dissolved | mg/l | -- | -- | 7.69 | 0% |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | NC |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12.6 | 1% |
| Strontium, dissolved | mg/l | -- | -- | 0.917 | 1% |
| Sulfur, dissolved | mg/l | -- | -- | 4.8 | 0% |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | NC |
| Tin, dissolved | mg/l | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | NC |
| Vanadium, dissolved | mg/l | -- | -- | 0.001 | 0% |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | NC |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | NC |
| Field Measurements | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1200 | -- |
| Temperature (Field) | deg c | -- | 15 | 13.8 | -- |
| pH (Field) | - | -- | -- | 7.3 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|------------|-----------|-----------|
| | | | | 27-May-2020 | 4-Nov-2020 | 26-May-21 | 17-Aug-21 |
| | | | | G18-92 | G18-92 | G18-92 | G18-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 410 | 380 | 859 | 770 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.16 | < 0.01 | 0.55 | 0.19 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | <3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 48 | 44 | 138 | 109 |
| Chloride | mg/l | -- | 250 | 28.5 | 42.2 | 106 | 127 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.7 | 15.6 | 18.6 | 19.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 509 | 437 | 1000 | 982 |
| Nitrate as N | mg/l | 10 | -- | 0.19 | 0.5 | 0.72 | 0.32 |
| Nitrite as N | mg/l | 1.0 | -- | 0.06 | < 0.05 | 0.69 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.1 | 1.8 | 2.8 | 2.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.009 | 0.009 | 0.002 | 0.003 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.19 | 0.19 | 0.12 |
| Sulphate | mg/l | -- | 500 (3) | 27 | 15 | 106 | 139 |
| Total Dissolved Solids | mg/l | -- | 500 | 511 | 476 | 1187 | 1180 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.06 | 0.08 | 0.17 | 0.09 |
| Barium, dissolved | mg/l | 1 | -- | 0.088 | 0.084 | 0.185 | 0.178 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.232 | 0.234 | 0.382 | 0.417 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000286 | 0.000077 | 0.000303 | 0.000123 |
| Calcium, dissolved | mg/l | -- | -- | 150 | 131 | 311 | 304 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | < 0.001 | 0.002 | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0019 | 0.0011 | 0.0039 | 0.0022 |
| Copper, dissolved | mg/l | -- | 1 | 0.0032 | 0.0029 | 0.0077 | 0.0056 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.011 | 2.28 | 1.41 | 10.7 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | 0.00006 | 0.00018 | 0.00008 |
| Magnesium, dissolved | mg/l | -- | -- | 32.6 | 26.6 | 55.3 | 54.3 |
| Manganese, dissolved | mg/l | -- | 0.05 | 6.98 | 2.76 | 15.5 | 6.65 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0002 | 0.0004 | 0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.0147 | 0.0064 | 0.0244 | 0.0124 |
| Potassium, dissolved | mg/l | -- | -- | 5.8 | 5.8 | 10.3 | 9.8 |
| Silicon, dissolved | mg/l | -- | -- | 7.57 | 6.54 | 9.85 | 10.3 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14.2 | 21.7 | 65 | 66.2 |
| Strontium, dissolved | mg/l | -- | -- | 0.627 | 0.539 | 1.32 | 1.18 |
| Sulfur, dissolved | mg/l | -- | -- | 9.2 | 7.3 | 40.4 | 42.2 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | 0.00006 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0004 | 0.0006 | 0.0014 | 0.0013 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | 0.005 | 0.006 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1024 | 815 | 1693 | 1920 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | 7.8 | 10.8 | 14.7 |
| pH (Field) | - | -- | -- | 7.4 | 8 | 7.71 | 6.95 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G18-92 | G18-92 | G18-92 | G18-92 |
|----------------------------------|--------|---------------------------------|---------------------|-----------|-----------|-----------|-----------|
| | | | | 31-May-22 | 28-Oct-22 | 03-May-23 | 15-Aug-23 |
| | | | | G18-92 | G18-92 | G18-92 | G18-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 392 | 493 | 255 | 536 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | 0.06 | < 0.01 | 0.12 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 109 | 218 | 43 | 90 |
| Chloride | mg/l | -- | 250 | 51.8 | 60.9 | 27.4 | 66.7 |
| Conductivity | µmho/c | -- | -- | 1005 | 1168 | 661 | 0.987 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 13.2 | 10.1 | 12.1 | 14.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 486 | 532 | 292 | 618 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 7.2 | 5.93 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | 0.07 | < 0.05 | 0.10 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2.5 | 5.3 | 1.7 | 2.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.002 | < 0.002 | 0.002 | 0.003 |
| Phosphorus | mg/l | -- | -- | 2.75 | 1.32 | 0.28 | 0.23 |
| Sulphate | mg/l | -- | 500 (3) | 56 | 110 | 50 | 154 |
| Total Dissolved Solids | mg/l | -- | 500 | 572 | 715 | 371 | 757 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.09 | 0.08 | 0.04 | 0.10 |
| Barium, dissolved | mg/l | 1 | -- | 0.085 | 0.088 | 0.068 | 0.119 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.252 | 0.252 | 0.174 | 0.445 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0001 | 0.000153 | 0.000078 | 0.000130 |
| Calcium, dissolved | mg/l | -- | -- | 149 | 164 | 89.4 | 191 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | 0.001 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0009 | 0.0012 | 0.0005 | 0.002 |
| Copper, dissolved | mg/l | -- | 1 | 0.0033 | 0.0066 | 0.0301 | 0.0053 |
| Iron, dissolved | mg/l | -- | 0.3 | 1.86 | 0.58 | 0.130 | 1.41 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00017 | < 0.00004 | 0.00005 | 0.00006 |
| Magnesium, dissolved | mg/l | -- | -- | 28 | 29.8 | 16.7 | 34.3 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.21 | 2.5 | 0.591 | 4.39 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0003 | 0.0001 | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | 0.0059 | < 0.01 | < 0.01 | 0.0115 |
| Potassium, dissolved | mg/l | -- | -- | 7.2 | 6.5 | 4.2 | 8.4 |
| Silicon, dissolved | mg/l | -- | -- | 7.75 | 5.51 | 4.44 | 6.93 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 42.4 | 44.6 | 29.5 | 78.6 |
| Strontium, dissolved | mg/l | -- | -- | 0.64 | 0.63 | 0.382 | 0.795 |
| Sulfur, dissolved | mg/l | -- | -- | 21.4 | 32 | 16.5 | 48.8 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0007 | 0.0009 | 0.0004 | 0.0007 |
| Zinc, dissolved | mg/l | -- | 5 | 0.008 | < 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 970 | 970 | 1400 | 1139 |
| Temperature (Field) | deg c | -- | 15 | 11.3 | 10.3 | 5.6 | 16.4 |
| pH (Field) | - | -- | -- | 6.89 | 7.73 | 7.06 | 6.81 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-----------------------|----------|-----------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 12-Oct-1992 (7) | 27-Nov-1992 (7) | 05-May-1993 (7) | 10-Nov-1993 (7) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | 8.63 | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 03-Jun-1994 | 08-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 13 | 12 | -- | 13 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <3 | 5 | -- | 5 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 3 | 2 | -- | 1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 2.6 | -- | 3.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 17 | 8 | -- | 14 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 30 | 45 | -- | 30 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.08 | 0.12 | -- | 0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | -- | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | <1 | <1 | -- | 9 |
| Strontium, dissolved | mg/l | -- | -- | 0.05 | 0.031 | -- | 0.053 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 50 | 38 | -- | 55 |
| Temperature (Field) | deg c | -- | 15 | 7 | 13 | -- | 9 |
| pH (Field) | - | -- | -- | 6.1 | 6.5 | -- | 5.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1995 | 07-Nov-1995 (7) | 16-Jul-1996 | 21-Nov-1996 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 10 | -- | 50 | 8 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 11 | -- | 11 | 16 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 7 | -- | 12 | 9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.5 | -- | 4.3 | 4.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 19 | -- | 41 | 26 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 44 | -- | 40 | 40 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.34 | -- | 0.26 | 0.34 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | -- | <0.01 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | -- | 13 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.084 | -- | 0.095 | 0.083 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 60 | -- | 66 | 43 |
| Temperature (Field) | deg c | -- | 15 | 15 | -- | 9 | 8.5 |
| pH (Field) | - | -- | -- | 7.1 | -- | 5.6 | 7.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 10-Jun-1997 | 10-Sep-1997 | 12-Jun-1998 | 19-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 12 | 14 | 18 | 17 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 21 | 5 | 20 | 11 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 15 | 7 | 3 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.5 | 4.4 | 13 | 2.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 37 | 30 | 35 | 32 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 68 | 60 | 52 | 52 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 10 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.23 | 0.19 | 0.53 | 0.2 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 3 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | <0.01 | 0.02 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 2 | 3 | 5 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.139 | 0.094 | 0.119 | 0.11 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 120 | 68 | 65 | 100 |
| Temperature (Field) | deg c | -- | 15 | 3 | 15 | 11 | 6.5 |
| pH (Field) | - | -- | -- | 7 | 6.4 | 5.8 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 25-May-1999 | 30-Aug-1999 | 30-May-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 36 | 18 | 26 | 46 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 15 | 10 | 74 | 10 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2 | 6 | 107 | 50 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.2 | 5 | 30.2 | 4.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 30 | 31 | 267 | 168 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | 0.5 | 0.02 |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 64 | 64 | 564 | 400 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.09 | 0.28 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 77 | 49 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.03 | 0.05 | 0.29 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 18 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.03 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 5 | 18 | 6 |
| Strontium, dissolved | mg/l | -- | -- | 0.142 | 0.111 | 1.01 | 0.623 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 100 | 55 | 500 | 398 |
| Temperature (Field) | deg c | -- | 15 | 8 | 10 | 7 | 14.1 |
| pH (Field) | - | -- | -- | 5.2 | 7 | 8.2 | 5.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 27-May-2001 | 08-Aug-2001 | 04-Apr-2002 | 06-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 66 | 214 | 257 | 836 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.32 | 0.11 | 0.12 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 41 | 58 | 65 | 102 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 11.8 | 35.5 | 50.7 | 118 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 160 | 289 | 844 | 1020 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 1.96 | 8.41 | 0.88 | 3.97 |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.03 |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 348 | 504 | 1010 | 1140 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.02 | <0.05 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 46 | 81 | 305 | 343 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.04 | 0.02 | <0.01 | 0.63 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 11 | 21 | 20 | 39 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.42 | 0.03 | 0.16 | 19.6 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31 | 52 | 36 | 20 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 250 | 650 | 1400 | 660 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | 12 | 5 | 16 |
| pH (Field) | - | -- | -- | 5.7 | 7.3 | 6.2 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-----------------|-------------|-------------|
| | | | | 13-May-2003 | 26-Aug-2003 (7) | 26-May-2004 | 27-May-2005 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 443 | -- | 461 | 449 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.23 | -- | 0.05 | 0.14 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 30 | -- | 14.8 | 17 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 68.1 | -- | 33.3 | 43.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1030 | -- | 1276 | 827 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 5.23 | -- | <0.1 | 5.64 |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | -- | < 0.003 | 0.05 |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1100 | -- | 1442 | 845 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | -- | 0.05 | 0.09 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 342 | -- | -- | 270 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | -- | 2.2 | 4.66 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 42 | -- | -- | 37 |
| Manganese, dissolved | mg/l | -- | 0.05 | 19.5 | -- | 10.4 | 3.73 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 50 | -- | 40.3 | 24 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 750 | -- | 1670 | 1300 |
| Temperature (Field) | deg c | -- | 15 | 7 | -- | 9.3 | 9 |
| pH (Field) | - | -- | -- | 7 | -- | 6.49 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 26-Aug-2005 | 03-Jun-2006 | 07-Sep-2006 | 28-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 244 | 187 | 384 | 236 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | 0.28 | 0.58 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 17 | 8 | 43 | 21 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.9 | 41.8 | 61.1 | 27.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 630 | 862 | 635 | 586 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 4.66 | 3.97 | 6.28 | 2.86 |
| Phosphate, Ortho | mg/l | -- | -- | 0.08 | 0.02 | 0.04 | 0.03 |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 832 | 949 | 884 | 722 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.05 | 0.66 | 0.35 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 201 | 271 | 203 | 195 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 5.13 | 0.97 | 11.6 | 0.18 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 31 | 45 | 31 | 24 |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.9 | 2.94 | 3.72 | 0.89 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 22 | 19 | 42 | 15 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 900 | 1010 | 910 | 825 |
| Temperature (Field) | deg c | -- | 15 | 18.7 | 9 | 17 | 10.3 |
| pH (Field) | - | -- | -- | 7.1 | 7 | 7 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-----------------|-------------|-------------|------------------------|
| | | | | 28-Aug-2007 (6) | 02-May-2008 | 08-Aug-2008 | 14-Apr-2009 G-20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 283 | 695 | 168 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.58 | 0.39 | 1.2 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 34 | 63 | 21 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 34.3 | 50.1 | 19.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 598 | 694 | 280 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | 2.08 | 8.18 | 12 |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.01 | 0.01 | < 0.01 |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 761 | 930 | 320 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.26 | 1.01 | 0.08 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 208 | 225 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.24 | 4.57 | 0.48 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 19 | 32 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 2.93 | 2.08 | 1.34 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 35 | 46 | 14.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 750 | 1430 | 500 |
| Temperature (Field) | deg c | -- | 15 | -- | 10 | -- (10) | 2 |
| pH (Field) | - | -- | -- | -- | 6.4 | -- (10) | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-------------|---------|-----------------|-------------|-----------------|-------------|
| | | ODWQS(169 | ODWQS- | 14-Aug-2009 (7) | 31-May-2010 | 11-Aug-2010 (6) | 28-Apr-2011 |
| | | /03)-Health | AO | G20-92 | M-7 | G20-92 | R-3 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 319 | -- | 205 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 1.4 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 14 | -- | 7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 18.5 | -- | 12.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | 310 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | 2.3 |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.02 | -- | 0.01 |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 510 | -- | 352 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.14 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | 0.39 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | 11.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- (10) | -- | 666 |
| Temperature (Field) | deg c | -- | 15 | -- | -- (10) | -- | 3.5 |
| pH (Field) | - | -- | -- | -- | -- (10) | -- | 6.72 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-----------------|-----------------|-------------|-----------------|
| | | | | 22-Aug-2011 (6) | 29-Aug-2012 (6) | 23-Apr-2013 | 06-Sep-2013 (6) |
| | | | | G20-92 | G20-92 | R-10 | G20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | 210 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | 0.27 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | 12 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | 14 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | 290 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | 3.1 | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | < 0.01 | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | 426 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.10 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | <0.02 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | 0.02 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | 12.3 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 602 | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 3.6 | -- |
| pH (Field) | - | -- | -- | -- | -- | 7.43 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-------------|---------|-------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 | ODWQS- | 12-May-2014 | 26-Aug-2014 (6) | 20-May-2015 (6) | 18-Aug-2015 (6) |
| | | /03)-Health | AO | 20-92 | 20-92 | G20-92 | G20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 300 | -- | -- | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.38 | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 20 | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21 | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 300 | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | 3.6 | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.011 | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 458 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.20 | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.08 | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.30 | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 24 | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 704 | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 12.5 | -- | -- | -- |
| pH (Field) | - | -- | -- | 7.10 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|--------------|-------------|------------------|-------------|
| | | | | 17-June-2016 | 02-May-2017 | 20-Sept-2017 (6) | 01-May-2018 |
| | | | | G20-92 | G20-92 | | G20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 420 | 602 | -- | 635 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 7.77 | 15.8 | -- | 18.3 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 22.8 | 24.8 | -- | 25.3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 22.3 | 34.9 | -- | 22.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 356 | 531 | -- | 550 |
| Nitrate as N | mg/l | 10 | -- | -- | 4.46 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | < 0.01 | -- | < 0.01 |
| Phosphorus, Total | mg/l | -- | -- | 8.63 | 0.64 | -- | 1.01 |
| Sulphate | mg/l | -- | 500 (3) | -- | 28 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 612 | 712 | -- | 746 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.53 | 1.21 | -- | 1.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 171 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0038 | 0.011 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.39 | 0.923 | -- | 0.074 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 25 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.814 | 1.85 | -- | 0.599 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 23.5 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 45.7 | 55.5 | -- | 50.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 863 | 1152 | -- | 1085 |
| Temperature (Field) | deg c | -- | 15 | 11.8 | 8.4 | -- | 3.3 |
| pH (Field) | - | -- | -- | 7.2 | 6.6 | -- | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-----------------|---------------|------------------|-----------------|
| | | | | 21-Aug-2018 (6) | 24-April-2019 | 25-Sept-2019 (6) | 26-May-2020 (6) |
| | | | | | G20-92 | G20-92 | G20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 358 | -- | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 3.19 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 14.9 | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 22.5 | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 383 | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 1.17 | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | 2 | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 465 | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.663 | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 124 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0035 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.034 | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 17.7 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.48 | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0017 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 31 | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0006 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 930 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 2.9 | -- | -- |
| pH (Field) | - | -- | -- | -- | 7.9 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|-------------|---------|----------------|-----------------|-----------------|
| | | ODWQS(169 | ODWQS- | 4-Nov-2020 (6) | 26-May-2021 (6) | 17-Aug-2021 (6) |
| | | /03)-Health | AO | G20-92 | G20-92 | G20-92 |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- |
| Phosphorus, Total | mg/l | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- |
| Metals | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G20-92 | G20-92 | G20-92 | G20-92 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|----------------------------|-----------|-----------|
| | | | | 31-May-2022 | 28-Oct-2022 ⁽⁶⁾ | 04-May-23 | 15-Aug-23 |
| | | | | G20-92 | G20-92 | G20-92 | G20-92 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 447 | -- | 442 | 453 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | -- | 2.52 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 20.1 | -- | 20.0 | 12.6 |
| Conductivity | µmho/c | -- | -- | -- | -- | 1121 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20.7 | -- | 20.9 | 19.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 524 | -- | 555 | 544 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.054 | -- | < 0.002 | 0.040 |
| Phosphorus, Total | mg/l | -- | -- | 51.4 | -- | 0.42 | 16.2 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 599 | -- | 673 | 546 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.16 | -- | 0.895 | 0.703 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 180 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.51 | -- | 0.067 | 0.040 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 25.5 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.58 | -- | 0.200 | 0.194 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 34.6 | -- | 42.3 | 32.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1050 | -- | 981 | 992 |
| Temperature (Field) | deg c | -- | 15 | 11 | -- | 7.5 | 15.3 |
| pH (Field) | - | -- | -- | 7.32 | -- | 6.98 | 6.95 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 09-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 | 11-Sep-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 144 | -- | 141 | 174 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 20 | -- | 15 | 38 |
| Chloride | mg/l | -- | 250 | 59 | -- | 33 | 102 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.9 | -- | 4.7 | 11.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 215 | -- | 192 | 316 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 320 | -- | 268 | 452 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 7.01 | -- | 0.98 | 4.13 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.12 | -- | 0.28 | 0.54 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 18 | -- | 18 | 29 |
| Strontium, dissolved | mg/l | -- | -- | 0.208 | -- | 0.203 | 0.347 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 575 | -- | 400 | 825 |
| Temperature (Field) | deg c | -- | 15 | 12 | -- | 12.5 | 12 |
| pH (Field) | - | -- | -- | 6.6 | -- | 6.8 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Nov-1995 | 16-Jul-1996 | 21-Nov-1996 | 10-Jun-1997 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 138 | 177 | 129 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 16 | 39 | 31 |
| Chloride | mg/l | -- | 250 | 197 | 38 | 135 | 21 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.8 | 11 | 6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 176 | 410 | 149 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 652 | 248 | 520 | 216 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 35 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.92 | 0.62 | 1.46 | 1.27 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 15 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.59 | 0.12 | 0.4 | 0.18 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 16 | 16 | 9 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.212 | 0.425 | 0.161 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1100 | 410 | 570 | 250 |
| Temperature (Field) | deg c | -- | 15 | 12 | 11 | 5 | 8.5 |
| pH (Field) | - | -- | -- | 7.1 | 7 | 7.2 | 5.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Sep-1997 | 12-Jun-1998 | 19-Aug-1998 | 25-May-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 160 | 173 | 186 | 180 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 21 | 39 | 16 | 15 |
| Chloride | mg/l | -- | 250 | 56 | 134 | 67 | 40 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.4 | 10.7 | 5.3 | 4.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 215 | 386 | 289 | 218 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 328 | 520 | 392 | 296 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.26 | 1.12 | 3.16 | 1.16 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.3 | 0.38 | 0.3 | 0.2 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 17 | 25 | 23 | 19 |
| Strontium, dissolved | mg/l | -- | -- | 0.252 | 0.357 | 0.313 | 0.241 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 440 | 390 | 670 | 410 |
| Temperature (Field) | deg c | -- | 15 | 15 | 10 | 13 | 6 |
| pH (Field) | - | -- | -- | 7.8 | 6.84 | 7.1 | 7.08 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 31-Aug-1999 (6) | 31-May-2000 | 17-Aug-2000 | 27-May-2001 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 178 | 189 | 190 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 15 | 16 | -- |
| Chloride | mg/l | -- | 250 | -- | 24 | 26 | 58 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.1 | 4.2 | 3.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 225 | 194 | 247 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 5.78 | 1.07 | 2.55 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 276 | 312 | 400 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.16 | 0.29 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 67 | 56 | 74 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.63 | 0.82 | 0.78 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 14 | 13 | 15 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.1 | 0.12 | 0.08 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 14 | 13 | 18 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.208 | 0.215 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 500 | 461 | 300 |
| Temperature (Field) | deg c | -- | 15 | -- | 6 | 14.7 | 10 |
| pH (Field) | - | -- | -- | -- | 7.1 | 6.36 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Aug-2001 (6) | 03-Apr-2002 | 06-Aug-2002 | 13-May-2003 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 127 | 188 | 125 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.07 | 0.04 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 41 | 76 | 93 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 4.5 | 4.9 | 5.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 177 | 257 | 237 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 1.48 | 1.49 | 1.44 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | <0.01 | 0.02 | 0.05 |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 306 | 437 | 389 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.05 | 0.07 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 61 | 65 | 67 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.33 | 1.67 | 0.88 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 6 | 23 | 17 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.07 | 0.188 | 0.09 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 11 | 33 | 24 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 470 | 440 | 430 |
| Temperature (Field) | deg c | -- | 15 | -- | 4 | 15 | 7 |
| pH (Field) | - | -- | -- | -- | 6.4 | 7.4 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-Aug-2003 | 26-May-2004 | 26-May-2005 | 26-Aug-2005 (6) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 133 | 108 | 83 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.03 | 0.06 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 94 | 77.3 | 121 | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.3 | 4.6 | 6.8 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 270 | 247.8 | 280 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.54 | <0.1 | 0.89 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | 0.03 | <0.003 | 0.05 | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 421 | 402 | 475 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.02 | 0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 72 | -- | 71 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.72 | 0.43 | 0.89 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 22 | -- | 25 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.151 | 0.118 | 0.17 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 30 | 19.6 | 20 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 460 | 468 | 731 | -- |
| Temperature (Field) | deg c | -- | 15 | 13 | 8.7 | -- | -- |
| pH (Field) | - | -- | -- | 7.1 | 7.56 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) ODWQS(169 /03)-Health | (4) (3) ODWQS- AO | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------------------------------|-------------------------|-------------|-------------|-------------|-----------------|
| | | | | 01-Jun-2006 | 07-Sep-2006 | 31-May-2007 | 23-Aug-2007 (6) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 67 | 158 | 81 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | 0.06 | 0.29 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 123 | 57 | 121 | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.5 | 5.1 | 3.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 288 | 166 | 262 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 9.17 | 3.43 | 0.7 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | 0.02 | 0.04 | 0.03 | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 494 | 384 | 463 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.01 | 0.01 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 71 | 50 | 57 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.56 | 0.08 | 0.13 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 27 | 10 | 29 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.06 | 0.11 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 26 | 44 | 40 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 600 | 550 | 500 | -- |
| Temperature (Field) | deg c | -- | 15 | 12 | 16 | 10.9 | -- |
| pH (Field) | - | -- | -- | 7.6 | 7.2 | 7.9 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) ODWQS(169 /03)-Health | (4) (3) ODWQS- AO | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------------------------------|-------------------------|-------------|-------------|-------------|---------------------|
| | | | | 02-May-2008 | 07-Aug-2008 | 14-Apr-2009 | 14-Aug-2009 |
| | | | | | | G-21-94 | 21-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 96 | 122 | 103 | 98 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | 0.04 | 0.06 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 65 | 90 | 90 | 160 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.4 | 3.2 | 2.4 | 1.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 134 | 134 | 160 | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 2.19 | 6.1 | 1.3 | 2.3 ⁽¹⁴⁾ |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 313 | 394 | 350 | 500 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 39 | 39 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.03 | <0.02 | 0.05 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 9 | 9 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | 0.01 | <0.01 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 39 | 53 | 39.5 | 65.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 325 | 480 | 500 | 672 |
| Temperature (Field) | deg c | -- | 15 | 8 | 18 | 3 | 18.2 |
| pH (Field) | - | -- | -- | 6.8 | 7.4 | 7.6 | 7.02 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------|--------------------|-------------|-------------|-------------|-----------------|
| | | ODWQS(169 | ODWQS- | 31-May-2010 | 12-Aug-2010 | 28-Apr-2011 | 22-Aug-2011 (9) |
| | | /03)-Health | AO | M-6 | R-6 | R-2 | G21-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 115 | 128 | 142 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 120 | 170 | 99 | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.1 | 2.3 | 1.8 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 240 | 230 | 120 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.4 | 1.6 | 2.1 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 500 | 554 | 376 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | <0.02 | <0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.03 | <0.02 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.02 | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 62.7 | 93.8 | 81.2 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 772 | 828 | 635 | -- |
| Temperature (Field) | deg c | -- | 15 | 17.9 | 17.1 | 4.3 | -- |
| pH (Field) | - | -- | -- | 6.76 | 6.31 | 7.33 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------|--------------------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 | ODWQS- | 04-Jun-2012 | 29-Aug-2012 (9) | 23-Apr-2013 | 06-Sep-2013 (9) |
| | | /03)-Health | AO | 21-94 | G21-94 | R-13 | G21-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 160 | -- | 170 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | -- | 0.070 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 180 | -- | 140 | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.2 | -- | 2.1 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 140 | -- | 140 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.0 | -- | 1.8 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | <0.010 | -- | <0.010 | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 506 | -- | 430 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | -- | <0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | -- | <0.02 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | -- | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 148 | -- | 133 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 884 | -- | 762 | -- |
| Temperature (Field) | deg c | -- | 15 | 11.8 | -- | 7.5 | -- |
| pH (Field) | - | -- | -- | 7.13 | -- | 7.78 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------|---------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 12-May-2014 | 26-Aug-2014 (9) | 20-May-2015 | 17-Jun-2015 |
| | | /03)-Health | AO | 21-94 | 21-94 | 21 | 21 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 170 | -- | 220 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | -- | <0.050 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 130 | -- | -- | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | 140 | 300 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.9 | -- | 2.8 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 130 | -- | 190 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | -- | <0.010 | -- |
| Phosphorus | mg/l | -- | -- | 1.6 | -- | 0.58 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 434 | -- | 590 | 780 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | -- | <0.02 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | -- | 0.06 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | -- | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 120 | -- | 150 | 170 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 849 | 492 | 851 | 908 |
| Temperature (Field) | deg c | -- | 15 | 12.6 | 14.5 | 11.4 | 11.8 |
| pH (Field) | - | -- | -- | 7.50 | 7.22 | 7.49 | 7.45 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) ODWQS(169 /03)-Health | (4) (3) ODWQS- AO | G21-94 | G21-94 | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|---------|-------------------------------------|-------------------------|-------------|------------------|--------------|-------------|-------------|-------------|
| | | | | 19-Aug-2015 | 30-Sep-2015 (13) | 17-June-2016 | 22-Aug-2016 | 02-May-2017 | 21-Sep-2017 |
| | | | | 21-94 | G21-94 | G21-94 | G21-94 | G21-94 | G21-94 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 140 | -- | 158 | 165 | 131 | 188 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | -- | < 0.01 | < 0.01 | 0.03 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | 180 | 2280 | 84.4 | 186 |
| Chloride, dissolved | mg/l | -- | 250 | 1200 | 1300 | -- | -- | -- | -- |
| Conductivity | µmho/cm | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.6 | -- | 1.2 | 0.2 | 2.1 | 2.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 280 | -- | 128 | 431 | 91 | 132 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | < 0.05 | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- | < 0.05 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | -- | < 0.01 | < 0.01 | 0.06 | 0.01 |
| Phosphorus | mg/l | -- | -- | 2.3 | -- | 0.57 | 0.63 | 0.6 | 0.16 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- | 12 | -- |
| Sulphate, dissolved | mg/l | -- | 500 (4) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 2800 | 3520 | 646 | 2045 | 301 | 579 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | -- | 0.007 | 0.01 | < 0.005 | < 0.005 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 31.9 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0001 | -- | < 0.005 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | -- | 0.015 | < 0.005 | 0.856 | 0.016 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 2.75 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | -- | 0.006 | 0.004 | 0.015 | 0.016 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 0.9 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 200 | 470 | 143 | 387 | 90.3 | 178 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 891 | 891 | 882 | 3010 | 612 | 915 |
| Temperature (Field) | deg c | -- | 15 | 13.1 | 11.9 | 13 | 14.8 | 7 | 15.5 |
| pH (Field) | - | -- | -- | 7.49 | 7.6 | 7.8 | 6.5 | 7 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) ODWQS(169 /03)-Health | (4) (3) ODWQS- AO | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------------------------------|-------------------------|-------------|-------------|---------------|------------------|
| | | | | 01-May-2018 | 21-Aug-2018 | 25-April-2019 | 26-Sept-2019 (6) |
| | | | | G21-94 | G21-94 | G21-94 | G21-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 163 | 99 | 109 | -- |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | 0.06 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 37 | 1070 | 8.9 | -- |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.5 | 0.3 | 3.3 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 93 | 748 | 60 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | < 0.01 | 1.48 | -- |
| Phosphorus | mg/l | -- | -- | 0.68 | 0.33 | 1.75 | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 268 | 1827 | 140 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | < 0.005 | 0.008 | < 0.005 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 21.7 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.014 | 0.07 | 0.013 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 1.4 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.001 | 0.154 | < 0.001 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | 0.0006 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 82.9 | 389 | 37.7 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.0001 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 383 | 1826 | 297 | -- |
| Temperature (Field) | deg c | -- | 15 | 4.9 | 15.6 | 5.5 | -- |
| pH (Field) | - | -- | -- | 7.2 | 7.1 | 7.7 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 |
|----------------------------------|--------|-------------|---------|-------------|----------------|-----------------|-------------|
| | | ODWQS(169 | ODWQS- | 26-May-2020 | 4-Nov-2020 (6) | 26-May-2021 (6) | 18-Aug-2021 |
| | | /03)-Health | AO | G21-94 | G21-94 | G21-94 | G21-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 203 | -- | -- | 167 |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.02 | -- | -- | <0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 292 | -- | -- | 727 |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | -- | -- | 0.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 214 | -- | -- | 362 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.023 | -- | -- | 0.01 |
| Phosphorus | mg/l | -- | -- | 3.8 | -- | -- | 1.17 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 705 | -- | -- | 1380 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.006 | -- | -- | 0.028 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | -- | -- | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.027 | -- | -- | 0.012 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.014 | -- | -- | 0.022 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.002 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 176 | -- | -- | 375 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1213 | -- | -- | 248 |
| Temperature (Field) | deg c | -- | 15 | 10.9 | -- | -- | 15.6 |
| pH (Field) | - | -- | -- | 7.4 | -- | -- | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G21-94 | G21-94 | G21-94 | G21-94 | | G21-94 | G21-94 | |
|----------------------------------|--------|-------------|--------------------|----------------------------|-------------|-----------|-----------|----------------|--------------|-----------|--------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 ⁽⁶⁾ | 28-Oct-2022 | 04-May-23 | 04-May-23 | | 14-Aug-23 | 14-Aug-23 | |
| | | /03)-Health | AO | G21-94 | G21-94 | G21-94 | G21-94 | Dup #2 | RDP | G21-94 | G21-94 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 274 | 131 | 129 | 1.54% | 223 | 223 | 0.00% |
| Ammonia, unionized | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | < 0.01 | 0.02 | < 0.01 | NC | <0.05 | <0.05 | NC |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 521 | 37.0 | 36.6 | 1.09% | 177 | 181 | 2.23% |
| Chloride, dissolved | mg/l | -- | 250 | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | 385 | 384 | 0.26% | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | < 0.2 | 3.5 | 3.3 | 5.88% | 1.7 | 1.5 | 12.50% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 326 | 35 | 35 | 0.00% | 78.5 | 79.5 | 1.27% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.002 | 0.037 | 0.036 | 2.74% | 0.026 | 0.025 | 3.92% |
| Phosphorus | mg/l | -- | -- | -- | -- | 3.15 | 2.83 | 10.70% | 0.54 | 0.77 | 35.11% |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽⁸⁾ | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 1171 | 214 | 213 | 0.47% | 549 | 551 | 0.36% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.018 | 0.006 | < 0.005 | NC | 0.011 | 0.011 | 0.00% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 12.7 | 12.7 | 0.00% | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.067 | 0.033 | 0.028 | 16.39% | 0.045 | 0.039 | 14.29% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 0.74 | 0.74 | 0.00% | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.124 | 0.001 | 0.001 | 0.00% | 0.078 | 0.079 | 1.27% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 305 | 69.5 | 70.5 | 1.43% | 199 | 199 | 0.00% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1640 | 353 | -- | Average: 3.12% | Average: 850 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 10.2 | 7.2 | -- | -- | 16.5 | -- | -- |
| pH (Field) | - | -- | -- | -- | 7 | 7.41 | -- | -- | 7.50 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Sep-1994 | 24-Nov-1994 (7) | 04-Jun-1995 | 11-Sep-1995 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 16 | -- | 14 | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 5 | -- | <3 | 8 |
| Chloride | mg/l | -- | 250 | <1 | -- | 1 | <1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1 | -- | 1.9 | 1.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 23 | -- | 23 | 35 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 40 | -- | 40 | 60 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.14 | -- | 0.66 | 0.62 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | -- | 0.02 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | <1 | -- | 6 | 2 |
| Strontium, dissolved | mg/l | -- | -- | 0.036 | -- | 0.06 | 0.105 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 90 | -- | 65 | 165 |
| Temperature (Field) | deg c | -- | 15 | 9 | -- | 7.5 | 9 |
| pH (Field) | - | -- | -- | 6.6 | -- | 6.2 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Nov-1995 (1) | 16-Jul-1996 | 21-Nov-1996 | 10-Jun-1997 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 20 | 16 | 8 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | <3 | 11 | 10 |
| Chloride | mg/l | -- | 250 | -- | 4 | 3 | 1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 1.9 | 1.6 | 3.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 41 | 34 | 36 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 60 | 44 | 80 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 6 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.42 | 0.5 | 0.41 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 5 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 8 | 4 | 3 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.09 | 0.063 | 0.044 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 81 | 46 | 34 |
| Temperature (Field) | deg c | -- | 15 | -- | 6 | 7.5 | 1.5 |
| pH (Field) | - | -- | -- | -- | 7.8 | 7.3 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Sep-1997 | 11-Jun-1998 | 20-Aug-1998 | 25-May-1999 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 14 | 16 | 13 | 26 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | <3 | <3 | <3 |
| Chloride | mg/l | -- | 250 | 2 | 2 | 3 | 3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.5 | 1.6 | 1.6 | 2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 40 | 39 | 43 | 15 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 40 | 44 | 52 | 44 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.48 | 0.73 | 0.13 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.04 | 0.02 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 3 | 4 | 4 |
| Strontium, dissolved | mg/l | -- | -- | 0.044 | 0.072 | 0.076 | 0.059 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 67 | 69 | 76 | 83 |
| Temperature (Field) | deg c | -- | 15 | 14 | 4.5 | 13 | 10 |
| pH (Field) | - | -- | -- | 6.9 | 6.1 | 7 | 5.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 30-Aug-1999 | 02-Jun-2000 | 18-Aug-2000 | 26-May-2001 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 20 | 21 | 41 | 27 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | 10 | <4 | -- |
| Chloride | mg/l | -- | 250 | 1 | 2 | 1 | 26 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.7 | 2.9 | 1 | 1.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 4 | 29 | 34 | 42 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 7.51 | 0.05 | 1.83 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 52 | 36 | 64 | 76 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.7 | 0.22 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 5 | 7 | 10 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | 0.92 | 0.21 | 2.43 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 4 | 4 | 4 |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.01 | <0.01 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | 3 | 3 | 2 |
| Strontium, dissolved | mg/l | -- | -- | 0.109 | 0.049 | 0.073 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 65 | 700 | 67 | 550 |
| Temperature (Field) | deg c | -- | 15 | 10 | 8 | 15.7 | 10.5 |
| pH (Field) | - | -- | -- | 5.21 | 6.38 | 5.66 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 08-Aug-2001 | 04-Apr-2002 | 07-Aug-2002 | 14-May-2003 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 42 | 58 | 45 | 17 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | 0.02 | <0.02 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 1 | 1 | 1 | 1 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.3 | 3.7 | 2.6 | 1.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 44 | 58 | 40 | 27 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | < 0.01 | 0.02 | 0.03 |
| Phosphorus | mg/l | -- | -- | 11.1 | 0.68 | 0.78 | 1.05 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 64 | 86 | 69 | 33 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.05 | <0.02 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 11 | 15 | 11 | 6 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.01 | <0.01 | 0.02 | 0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 4 | 5 | 3 | 3 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.01 | <0.01 | 0.045 | 0.021 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3 | <2 | <2 | 3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 115 | 620 | 710 | 3 |
| Temperature (Field) | deg c | -- | 15 | 12 | 5 | 16 | 6 |
| pH (Field) | - | -- | -- | 7.3 | 6.2 | 6.3 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 | 27-May-2005 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 40 | 10 | 22 | 26 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.09 | 0.06 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 2 | 2.1 | 5.9 | 54 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.3 | 3.7 | 2.1 | 1.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 30 | 19.3 | 21.4 | 70 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.02 | 0.007 | 0.05 |
| Phosphorus | mg/l | -- | -- | 0.66 | <0.1 | <0.1 | 6.23 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 61 | 128 | 34 | 157 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.05 | <0.01 | 0.02 | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 7 | -- | -- | 18 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | 0.02 | 0.02 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 3 | -- | -- | 6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.023 | 0.026 | 0.047 | 0.17 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | <2 | 3.5 | 4.1 | 16 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 120 | 30 | 210 | 241 |
| Temperature (Field) | deg c | -- | 15 | 14 | 9.9 | 16 | 9 |
| pH (Field) | - | -- | -- | 7.2 | 8.6 | 7.3 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 | 28-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 21 | 26 | 34 | 21 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | <0.02 | 0.04 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 40 | 47 | 11 | 5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1 | 2.8 | 2.5 | 3.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 61 | 46 | 21 | 7 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.03 | 0.04 | 0.02 |
| Phosphorus | mg/l | -- | -- | 1.9 | 0.69 | 0.72 | 2.64 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 126 | 160 | 78 | 32 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.01 | <0.01 | 0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 16 | 12 | 5 | 3 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.03 | <0.03 | <0.03 | 0.22 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 5 | 4 | 2 | <1 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.08 | 0.06 | 0.01 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 9 | 25 | 16 | 4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 194 | 200 | 2610 | 475 |
| Temperature (Field) | deg c | -- | 15 | 16.2 | 13 | 15 | 11.1 |
| pH (Field) | - | -- | -- | 6 | 6.4 | 6.6 | 8.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|------------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-Aug-2007 | 01-May-2008 | 07-Aug-2008 | 13-Apr-2009 G-26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 9 | 40 | 44 | 27 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.03 | 0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 3 | 3 | 160 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 3.4 | 2.1 | 1.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 21 | 26 | 35 | 190 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.06 | 0.1 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 9.46 | 4.68 | 1.43 | 8.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1370 | 79 | 72 | 375 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | 0.03 | 0.01 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 5 | 7 | 9 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.07 | <0.03 | <0.03 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 2 | 2 | 3 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | <0.01 | 0.02 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 5 | 15 | 8 | 23.1 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 400 | 121 | 100 | 500 |
| Temperature (Field) | deg c | -- | 15 | 13.3 | 8 | 16 | 5 |
| pH (Field) | - | -- | -- | 7.3 | 6.1 | 5.8 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-------------|--------------------|-------------|---------------------|---------------------|---------------------|
| | | ODWQS(169 | ODWQS- | 08-May-2009 | 13-Aug-2009 | 01-Jun-2010 | 11-Aug-2010 |
| | | /03)-Health | AO | 26-94 | 26-94 | C-2 | C-2 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 17 | 23 | 24 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.06 | 0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 170 | 82 | 83 | 62 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 0.8 | 2.6 | 1.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 96 | 120 | 100 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 2.5 ⁽¹⁴⁾ | 3.5 ⁽¹⁴⁾ | 3.0 ⁽¹⁴⁾ |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 210 | 234 | 184 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | <0.01 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 21.0 | 13.8 | 12.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 449 | 428 | 279 |
| Temperature (Field) | deg c | -- | 15 | -- | 15.7 | 10.1 | 14.9 |
| pH (Field) | - | -- | -- | -- | 6.29 | 5.68 | 5.22 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-----------------------|----------|---------------------|-----------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 02-May-2011 R-17 | 23-Aug-2011 G26-94 | 04-Jun-2012 26-94 | 29-Aug-2012 26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 35 | 22 | 35 | 38 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | <0.05 | <0.050 | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 5 | 7 | 5 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.1 | 1.2 | 2.3 | 1.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 13 | 21 | 29 | 39 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | 0.022 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 9.0 | 4.6 | 6.7 | 3.0 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 54 | 42 | 136 | 24 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.04 | <0.02 | <0.02 | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.04 | <0.01 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14.2 | 7.2 | 10.0 | 7.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 405 | 80 | 97 | 169 |
| Temperature (Field) | deg c | -- | 15 | 6.9 | 13.2 | 9.1 | 13.2 |
| pH (Field) | - | -- | -- | 7.30 | 5.8 | 5.88 | 6.01 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 | 26-Aug-2014 |
| | | /03)-Health | AO | R-3 | 26-94 | 26-94 | 26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 17 | 26 | 41 | 33 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.16 | <0.050 | 0.086 | 0.074 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 1 | 3 | 5 | 4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.9 | 2.7 | 3.4 | 1.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 17 | 15 | 13 | 21 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.011 | 0.019 | 0.023 | 0.011 |
| Phosphorus | mg/l | -- | -- | 4.2 | 2.2 | 9.9 | 2.4 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 174 | 100 | 200 | 82 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | <0.02 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.07 | 0.03 | 0.06 | 0.09 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.08 | <0.01 | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 4.7 | 8.1 | 15 | 10 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 81 | 77 | 115 | 115 |
| Temperature (Field) | deg c | -- | 15 | 6.4 | 14.9 | 12.4 | 15.6 |
| pH (Field) | - | -- | -- | 7.88 | 6.64 | 7.12 | 7.56 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|-------------|---------|-------------|-------------|--------------|-------------|
| | | ODWQS(169 | ODWQS- | 20-May-2015 | 18-Aug-2015 | 16-June-2016 | 22-Aug-2016 |
| | | /03)-Health | AO | 26 | 26-94 | G26-94 | G26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 40 | 38 | 23 | 29 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | <0.050 | 0.02 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 3.3 | 2.6 | 3.2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.7 | 1.6 | 2.1 | 1.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 18 | 18 | 15 | 19 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.018 | 0.013 | 0.11 | 0.04 |
| Phosphorus | mg/l | -- | -- | 2.2 | 1.8 | 4.27 | 1.85 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 122 | 94 | 43 | 52 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | 0.006 | 0.009 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0001 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | 0.05 | 0.045 | 0.008 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | <0.01 | 0.02 | 0.005 | 0.003 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12 | 13 | 8.9 | 10 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 226 | 209 | 75 | 87 |
| Temperature (Field) | deg c | -- | 15 | 11.5 | 12.2 | 9.6 | 12 |
| pH (Field) | - | -- | -- | 7.30 | 7.38 | 8 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | | | G26-94 | G26-94 | G26-94 | G26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 30 | 60 | 25 | 26 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | < 0.01 | 0.02 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 11 | 10 | 55 | 10 |
| Chloride | mg/l | -- | 250 | 3.1 | 3.9 | 3.8 | 3.2 |
| Conductivity | µmho/c | -- | -- | -- | 146 | 96 | 89.5 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.3 | 2.1 | 2.4 | 2.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 19 | 42 | 34 | 23 |
| Nitrate as N | mg/l | 10 | -- | 0.18 | 0.11 | 0.08 | 0.39 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.62 | 0.3 | 0.6 | 0.2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.15 | 0.03 | 0.08 | 0.02 |
| Phosphorus | mg/l | -- | -- | 3.64 | 1.44 | 4.74 | 0.48 |
| Sulphate | mg/l | -- | 500 (3) | 8 | 4 | 12 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | 48.3 | 74 | 48 | 47 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.09 | 0.02 | 0.02 | 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.007 | 0.013 | 0.008 | 0.007 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.007 | 0.009 | 0.012 | 0.009 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000014 | < 0.000014 | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 4.91 | 11.1 | 8.91 | 6.02 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.002 | < 0.002 | < 0.001 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | 0.0002 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | < 0.002 | 0.0009 | 0.0011 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.14 | 0.011 | 0.007 | 0.006 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | 0.00003 | 0.00002 | 0.00008 |
| Magnesium, dissolved | mg/l | -- | -- | 1.65 | 3.56 | 2.74 | 1.97 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.007 | 0.14 | 0.052 | 0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 0.5 | 1.2 | 0.9 | 1 |
| Silicon, dissolved | mg/l | -- | -- | 3.12 | 5.99 | 2.98 | 4.7 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 11.7 | 16.2 | 5.4 | 8.6 |
| Strontium, dissolved | mg/l | -- | -- | 0.056 | 0.123 | 0.099 | 0.067 |
| Sulfur, dissolved | mg/l | -- | -- | 2.9 | 1.9 | 3.5 | 3.3 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.008 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.001 | 0.0008 | 0.0001 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | -- | 0.027 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 95 | 124 | 80 | 77 |
| Temperature (Field) | deg c | -- | 15 | 6.6 | 13.2 | 5 | 12.8 |
| pH (Field) | - | -- | -- | 6.4 | 6.1 | 8.1 | 7.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|---------------------------------|---------------------|---------------|--------------|-------------|------------|
| | | | | 24-April-2019 | 25-Sept-2019 | 26-May-2020 | 4-Nov-2020 |
| | | | | G26-94 | G26-94 | G26-94 | G26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 26 | 29 | 23 | 18 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | 0.03 | 0.2 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 35 | 6 | 5 | 231 |
| Chloride | mg/l | -- | 250 | 1.9 | < 0.5 | 2.4 | 1.7 |
| Conductivity | µmho/c | -- | -- | 71 | 70 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.2 | 1.3 | 2.7 | 1.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 26 | 27 | 24 | 19 |
| Nitrate as N | mg/l | 10 | -- | 0.23 | < 0.05 | 0.09 | 0.12 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.9 | 0.6 | 0.5 | 1.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.696 | 0.426 | 0.379 | 0.093 |
| Phosphorus | mg/l | -- | -- | 0.94 | 0.44 | 1.23 | 4.34 |
| Sulphate | mg/l | -- | 500 (3) | 5 | 1 | 5 | 4 |
| Total Dissolved Solids | mg/l | -- | 500 | 36 | 35 | 33 | 27 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | < 0.01 | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | < 0.01 | -- | 0.02 | 0.02 |
| Barium, dissolved | mg/l | 1 | -- | 0.005 | 0.008 | 0.006 | 0.006 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.006 | 0.008 | 0.009 | 0.014 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 6.84 | 7.07 | 6.39 | 5.2 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.086 | < 0.001 | < 0.001 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | 0.0001 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0007 | 0.0007 | 0.001 | 0.0025 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | 0.028 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00006 | < 0.00002 | 0.00004 | 0.0001 |
| Magnesium, dissolved | mg/l | -- | -- | 2.25 | 2.27 | 1.96 | 1.58 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.013 | 0.004 | 0.004 | 0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0009 | < 0.01 | 0.0004 | 0.0006 |
| Potassium, dissolved | mg/l | -- | -- | 0.7 | 0.9 | 0.7 | 0.7 |
| Silicon, dissolved | mg/l | -- | -- | 2.64 | 5.39 | 2.97 | 4.13 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3.2 | 5.8 | 2.3 | 3 |
| Strontium, dissolved | mg/l | -- | -- | 0.08 | 0.08 | 0.068 | 0.055 |
| Sulfur, dissolved | mg/l | -- | -- | 1.6 | 1.6 | 1.2 | 1.4 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0001 | 0.0002 | 0.0002 | 0.0003 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 80 | 80 | 81 | 52 |
| Temperature (Field) | deg c | -- | 15 | 3.4 | 12.6 | 8.9 | 8.9 |
| pH (Field) | - | -- | -- | 6.8 | 8.3 | 6.8 | 9.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G26-94 | |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-2021 | 17-Aug-2021 |
| | | | | G26-94 | G26-94 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 22 | 23 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | 5 |
| Chloride | mg/l | -- | 250 | 1.5 | 3.2 |
| Conductivity | µmho/c | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2 | 2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 19 | 20 |
| Nitrate as N | mg/l | 10 | -- | 0.17 | 0.08 |
| Nitrite as N | mg/l | 1.0 | -- | 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.4 | 0.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.063 |
| Phosphorus | mg/l | -- | -- | 1.99 | 0.98 |
| Sulphate | mg/l | -- | 500 (3) | 3 | 4 |
| Total Dissolved Solids | mg/l | -- | 500 | 1.5 | 32 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.02 | 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.005 | 0.004 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.009 | 0.009 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 4.8 | 5.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0035 | 0.0024 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.023 | 0.022 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00004 | 0.00006 |
| Magnesium, dissolved | mg/l | -- | -- | 1.61 | 1.67 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.003 | 0.006 |
| Mercury | mg/l | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0006 | 0.0004 |
| Potassium, dissolved | mg/l | -- | -- | 0.6 | 0.7 |
| Silicon, dissolved | mg/l | -- | -- | 4.19 | 5.2 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 2.8 | 3.1 |
| Strontium, dissolved | mg/l | -- | -- | 0.058 | 0.058 |
| Sulfur, dissolved | mg/l | -- | -- | 1.3 | 1.3 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0002 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 |
| Field Measurements | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 62 | 60 |
| Temperature (Field) | deg c | -- | 15 | 8.9 | 11.8 |
| pH (Field) | - | -- | -- | 9 | 7.35 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G26-94 | G26-94 | G26-94 | G26-94 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|------------|-----------|
| | | | | 31-May-2022 | 28-Oct-2022 | 03-May-23 | 15-Aug-23 |
| | | | | G26-94 | G26-94 | G26-94 | G26-94 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 19 | 21 | 47 | 47 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | < 0.01 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | 15 | 12 | 7 |
| Chloride | mg/l | -- | 250 | 1.7 | 1.3 | 1.0 | 2.2 |
| Conductivity | µmho/c | -- | -- | 56 | 58 | 108 | 97.4 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 1.6 | 2.8 | 2.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 20 | 21 | 41 | 33.7 |
| Nitrate as N | mg/l | 10 | -- | 0.12 | 0.11 | < 0.05 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | 0.10 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.6 | 0.2 | 0.4 | 0.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.171 | 0.015 | 0.022 | 0.030 |
| Phosphorus | mg/l | -- | -- | 4.77 | 0.16 | 4.58 | 1.36 |
| Sulphate | mg/l | -- | 500 (3) | 4 | 5 | 9 | 5 |
| Total Dissolved Solids | mg/l | -- | 500 | 28 | 29 | 57 | 46 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.03 | < 0.01 | 0.04 | 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.006 | 0.008 | 0.015 | 0.009 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | < 0.005 | < 0.005 | 0.009 | 0.008 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | 0.000013 | < 0.000010 | 0.000021 |
| Calcium, dissolved | mg/l | -- | -- | 5.41 | 5.78 | 11.3 | 9.04 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0001 | 0.0006 | 0.0001 | 0.0007 |
| Copper, dissolved | mg/l | -- | 1 | 0.0012 | 0.0015 | 0.0015 | 0.0027 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.027 | 0.022 | 0.055 | 0.033 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00002 | 0.00002 | 0.00005 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 1.67 | 1.69 | 3.21 | 2.71 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.005 | 0.105 | 0.020 | 0.188 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0007 | < 0.01 | < 0.01 | 0.0031 |
| Potassium, dissolved | mg/l | -- | -- | 0.9 | 0.6 | 0.8 | 0.9 |
| Silicon, dissolved | mg/l | -- | -- | 4.33 | 3.36 | 2.50 | 3.52 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 2.5 | 2.6 | 2.7 | 3.3 |
| Strontium, dissolved | mg/l | -- | -- | 0.059 | 0.057 | 0.126 | 0.101 |
| Sulfur, dissolved | mg/l | -- | -- | 1.7 | 1.5 | 3.0 | 1.85 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0003 | 0.0002 | 0.0004 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 70 | 70 | 160 | 1139 |
| Temperature (Field) | deg c | -- | 15 | 9.6 | 11.1 | 7.7 | 13.7 |
| pH (Field) | - | -- | -- | 7.51 | 6.31 | 7.23 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | RUC Calculations | | | |
|----------------------------------|--------|-----------------------|----------|------------------|------|------|--------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | Median (Pb) | x | CM | Callow |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | | | | |
| Ammonia, unionized (Field) | mg/l | -- | -- | | | | |
| Ammonia Nitrogen | mg/l | -- | -- | | | | |
| Bicarbonate | mg/l | -- | -- | | | | |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | | | | |
| Bromide | mg/l | -- | -- | | | | |
| Carbonate (CO3) | mg/l | -- | -- | | | | |
| Chemical Oxygen Demand | mg/l | -- | -- | | | | |
| Chloride | mg/l | -- | 250 | 2.6 | 0.5 | 250 | 126 |
| Conductivity | umho/c | -- | -- | | | | |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.05 | 0.5 | 5 | 3.5 |
| Fluoride | mg/l | 1.5 | -- | | | | |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | | | | |
| Nitrate as N | mg/l | 10 | -- | | | | |
| Nitrite as N | mg/l | 1.0 | -- | | | | |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | | | | |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | | | | |
| Nitrogen, Organic | mg/l | 0.15 | -- | | | | |
| Phosphate | mg/l | -- | -- | | | | |
| Phosphate, Ortho | mg/l | -- | -- | | | | |
| Phosphorus | mg/l | -- | -- | | | | |
| Sulphate | mg/l | -- | 500 (3) | | | | |
| Total Dissolved Solids | mg/l | -- | 500 | 39.5 | 0.5 | 500 | 270 |
| Total Organic Carbon | mg/l | -- | -- | | | | |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | | | | |
| Barium, dissolved | mg/l | 1 | -- | | | | |
| Beryllium, dissolved | mg/l | -- | -- | | | | |
| Boron, dissolved | mg/l | 5 | -- | 0.009 | 0.25 | 5 | 1.3 |
| Cadmium, dissolved | mg/l | 0.005 | -- | | | | |
| Calcium, dissolved | mg/l | -- | -- | | | | |
| Chromium, dissolved | mg/l | 0.05 | -- | | | | |
| Cobalt, dissolved | mg/l | -- | -- | | | | |
| Copper, dissolved | mg/l | -- | 1 | | | | |
| Iron, dissolved | mg/l | -- | 0.3 | 0.025 | 0.5 | 0.3 | 0.2 |
| Lead, dissolved | mg/l | 0.01 | -- | | | | |
| Magnesium, dissolved | mg/l | -- | -- | | | | |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.0065 | 0.5 | 0.05 | 0.03 |
| Mercury | mg/l | -- | -- | | | | |
| Mercury, dissolved | mg/l | 0.001 | -- | | | | |
| Molybdenum, dissolved | mg/l | -- | -- | | | | |
| Nickel, dissolved | mg/l | -- | -- | | | | |
| Potassium, dissolved | mg/l | -- | -- | | | | |
| Silicon, dissolved | mg/l | -- | -- | | | | |
| Silver, dissolved | mg/l | -- | -- | | | | |
| Sodium, dissolved | mg/l | -- | 200 (4) | 3.25 | 0.5 | 200 | 102 |
| Strontium, dissolved | mg/l | -- | -- | | | | |
| Sulfur, dissolved | mg/l | -- | -- | | | | |
| Thallium, dissolved | mg/l | -- | -- | | | | |
| Tin, dissolved | mg/l | -- | -- | | | | |
| Titanium, dissolved | mg/l | -- | -- | | | | |
| Vanadium, dissolved | mg/l | -- | -- | | | | |
| Zinc, dissolved | mg/l | -- | 5 | | | | |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | | | | |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | | | | |
| Temperature (Field) | deg c | -- | 15 | | | | |
| pH (Field) | - | -- | -- | | | | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) |
|----------------------------------|--------|-----------------------|----------|
| | | ODWQS(169 /03)-Health | ODWQS-AO |
| General Chemistry | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 |
| Ammonia, unionized (Field) | mg/l | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- |
| Bicarbonate | mg/l | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- |
| Bromide | mg/l | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- |
| Chloride | mg/l | -- | 250 |
| Conductivity | µmho/c | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 |
| Fluoride | mg/l | 1.5 | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 |
| Nitrate as N | mg/l | 10 | -- |
| Nitrite as N | mg/l | 1.0 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- |
| Phosphate | mg/l | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- |
| Phosphorus | mg/l | -- | -- |
| Sulphate | mg/l | -- | 500 (3) |
| Total Dissolved Solids | mg/l | -- | 500 |
| Total Organic Carbon | mg/l | -- | -- |
| Metals | | | |
| Aluminum, total | mg/l | -- | 0.1 |
| Aluminum, dissolved | mg/l | -- | 0.1 |
| Barium, dissolved | mg/l | 1 | -- |
| Beryllium, dissolved | mg/l | -- | -- |
| Boron, dissolved | mg/l | 5 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- |
| Calcium, dissolved | mg/l | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- |
| Cobalt, dissolved | mg/l | -- | -- |
| Copper, dissolved | mg/l | -- | 1 |
| Iron, dissolved | mg/l | -- | 0.3 |
| Lead, dissolved | mg/l | 0.01 | -- |
| Magnesium, dissolved | mg/l | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 |
| Mercury | mg/l | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- |
| Nickel, dissolved | mg/l | -- | -- |
| Potassium, dissolved | mg/l | -- | -- |
| Silicon, dissolved | mg/l | -- | -- |
| Silver, dissolved | mg/l | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) |
| Strontium, dissolved | mg/l | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- |
| Thallium, dissolved | mg/l | -- | -- |
| Tin, dissolved | mg/l | -- | -- |
| Titanium, dissolved | mg/l | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 |
| Phenols | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- |
| Field Measurements | | | |
| Conductivity (Field) | uS/cm | -- | -- |
| Temperature (Field) | deg c | -- | 15 |
| pH (Field) | - | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Jun-1997 | 11-Sep-1997 | 11-Jun-1998 | 19-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 170 | 166 | 136 | 136 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 23 | 16 | <3 | 16 |
| Chloride | mg/l | -- | 250 | 33 | 24 | 20 | 33 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.4 | 4.8 | 4 | 4.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 183 | 187 | 157 | 163 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 280 | 280 | 236 | 240 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 47 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.39 | 1.02 | 0.76 | 0.14 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 16 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.21 | 0.35 | 0.16 | 0.21 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 18 | 19 | 18 | 22 |
| Strontium, dissolved | mg/l | -- | -- | 0.174 | 0.213 | 0.132 | 0.169 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 410 | 400 | 300 | 430 |
| Temperature (Field) | deg c | -- | 15 | 9 | 17 | 17 | 16 |
| pH (Field) | - | -- | -- | 6.9 | 6.5 | 6.7 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|--------------------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-1999 | 30-Aug-1999 | 31-May-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 122 | 98 | 181 | 192 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 17 | 13 | 8 | 13 |
| Chloride | mg/l | -- | 250 | 23 | 26 | 21 | 37 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5 | 3.5 | 4 | 4.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 126 | 136 | 202 | 187 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 0.03 | 0.01 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 180 | 196 | 256 | 324 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.15 | 0.27 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 51 | 47 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.06 | 0.02 | 0.04 | 0.46 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 19 | 17 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 0.14 | 0.01 | 0.24 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 18 | 19 | 20 | 23 |
| Strontium, dissolved | mg/l | -- | -- | 0.122 | 0.113 | 0.158 | 0.18 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 270 | 220 | 210 | 390 |
| Temperature (Field) | deg c | -- | 15 | 9 | 13 | 7 | 17 |
| pH (Field) | - | -- | -- | 6.21 | 6.69 | 6.98 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 | 16-Oct-2001 | 03-Apr-2002 | 06-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 217 | 182 | 212 | 281 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | 0.31 | 0.13 | 0.11 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 42 | 40 | 49 | 57 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6 | 5.7 | 5.6 | 7.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 232 | 206 | 245 | 302 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.08 |
| Phosphorus | mg/l | -- | -- | 0.58 | 0.38 | 0.25 | 0.36 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 280 | 312 | 376 | 460 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.06 | 0.06 | <0.05 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 55 | 51 | 52 | 73 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.46 | 0.65 | 0.58 | 3.08 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 23 | 19 | 28 | 29 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.23 | 0.24 | 0.24 | 0.506 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 22 | 24 | 31 | 29 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 200 | 320 | 240 | 250 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 11 | 6 | 16 |
| pH (Field) | - | -- | -- | 7 | 7.6 | 6.8 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 13-May-2003 | 26-Aug-2003 | 26-May-2004 | 30-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 229 | 321 | 294 | 329 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.04 | <0.03 | <0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 70 | 54 | 58.1 | 44.6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8 | 9.7 | 11.2 | 9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 249 | 348 | 346.3 | 326.5 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.06 | < 0.003 | < 0.002 |
| Phosphorus | mg/l | -- | -- | 0.37 | 0.24 | <0.1 | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 397 | 482 | 458 | 290 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.07 | 0.06 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 57 | 85 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.07 | 2.33 | 0.06 | 3.53 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 26 | 33 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.287 | 0.326 | 0.399 | 0.404 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 24 | 28 | 29.2 | 25.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 380 | 420 | 600 | 445 |
| Temperature (Field) | deg c | -- | 15 | 6 | 12 | 11.1 | 15 |
| pH (Field) | - | -- | -- | 6.9 | 6.8 | 6.9 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-2005 | 26-Aug-2005 | 03-Jun-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 384 | 362 | 320 | 357 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.03 | 0.14 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 67 | 52 | 51 | 57 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.3 | 9.8 | 12.2 | 15.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 361 | 395 | 367 | 396 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.09 | 0.03 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.39 | 0.12 | 0.22 | 0.08 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 576 | 542 | 509 | 625 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.07 | 0.09 | 0.09 | 0.16 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 87 | 97 | 91 | 96 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.15 | 2.03 | 1.84 | 0.74 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 35 | 37 | 34 | 38 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.31 | 0.38 | 0.08 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 28 | 30 | 26 | 42 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 886 | 1000 | 665 | 1090 |
| Temperature (Field) | deg c | -- | 15 | 8 | 16.7 | 8 | 14 |
| pH (Field) | - | -- | -- | 6.9 | 7.1 | 7.3 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 29-May-2007 | 28-Aug-2007 | 30-Apr-2008 | 06-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 443 | 493 | 267 | 532 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.04 | 0.03 | 0.03 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | <1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 64 | 74 | 36 | 84 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 24.7 | 27.3 | 11.4 | 29.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 510 | 563 | 338 | 536 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.06 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.26 | 0.18 | 0.09 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 722 | 832 | 449 | 813 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.28 | 0.36 | 0.27 | 0.54 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 125 | 143 | 86 | 137 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.32 | 0.28 | 0.23 | 0.49 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 48 | 50 | 30 | 47 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.11 | 0.09 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 52 | 60 | 33 | 59 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 750 | 800 | 455 | 1000 |
| Temperature (Field) | deg c | -- | 15 | 10.9 | 12.8 | 7.5 | 20 |
| pH (Field) | - | -- | -- | 7.9 | 7.8 | 6.6 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 15-Apr-2009 | 14-Aug-2009 | 31-May-2010 | 11-Aug-2010 |
| | | | | G-27-97 | 27-97 | T-6 | C-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 429 | 489 | 386 | 376 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 72 | 73 | 62 | 63 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 18.4 | 23.7 | 18.3 | 18.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 490 | 510 | 500 | 520 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.02 |
| Phosphorus | mg/l | -- | -- | 0.18 | 0.11 | 0.17 | 0.20 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 700 | 768 | 700 | 684 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.31 | 0.44 | 0.38 | 0.43 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.16 | 0.41 | 0.03 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.08 | 0.06 | 0.05 | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 46.3 | 63.9 | 54.0 | 58.7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 900 | 1037 | 1096 | 1003 |
| Temperature (Field) | deg c | -- | 15 | 3 | 19.2 | 11.8 | 16.3 |
| pH (Field) | - | -- | -- | 7.6 | 6.92 | 7.07 | 7.35 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-----------------|
| | | ODWQS(169 | ODWQS- | 29-Apr-2011 | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 (6) |
| | | /03)-Health | AO | R-12 | G27-97 | 27-97 | G27-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 326 | 358 | 420 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | 0.08 | <0.050 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 47 | 76 | 77 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 13.9 | 20.6 | 21 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 440 | 510 | 550 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | -- |
| Phosphorus | mg/l | -- | -- | 0.40 | 0.3 | 0.18 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 574 | 800 | 824 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.21 | 0.43 | 0.35 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | 0.03 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.31 | 0.03 | 0.07 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 41.6 | 56.4 | 45.2 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 970 | 1010 | 1087 | -- |
| Temperature (Field) | deg c | -- | 15 | 6.4 | 16.1 | 13.2 | -- |
| pH (Field) | - | -- | -- | 8.34 | 7.33 | 7.16 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-----------------------|----------|---------------------|---------------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 23-Apr-2013 R-11 | 06-Sep-2013 (6) G27-97 | 12-May-2014 27-97 | 27-Aug-2014 27-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 470 | -- | 380 | 410 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | -- | 0.13 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 82 | -- | 55 | 49 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 29 | -- | 18 | 18 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 550 | -- | 460 | 500 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | -- | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.40 | -- | 0.33 | 0.36 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 766 | -- | 666 | 762 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.42 | -- | 0.24 | 0.31 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | -- | 0.08 | 0.62 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.07 | -- | 0.11 | 0.11 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 68.8 | -- | 41 | 46 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1192 | -- | 961 | 1070 |
| Temperature (Field) | deg c | -- | 15 | 6.9 | -- | 11.4 | 16.0 |
| pH (Field) | - | -- | -- | 7.74 | -- | 7.38 | 7.53 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G27-97 | G27-97 | G27-97 | Dup. | RPD | G27-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|--------------|--------------|-----|-------------|
| | | | | 20-May-2015 | 19-Aug-2015 | 17-June-2016 | 17-June-2016 | | 22-Aug-2016 |
| | | | | 27 | 27-97 | 27-97 | | | 27-97 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 500 | 440 | 550 | 545 | 1% | 501 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.087 | 0.076 | < 0.01 | < 0.01 | NC | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 49 | 48 | 79.9 | 80.4 | 1% | 98.7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 25 | 21 | 19.6 | 17.7 | 10% | 19.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 570 | 570 | 603 | 604 | 0% | 618 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | < 0.01 | < 0.01 | NC | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.33 | 3.73 | 3.66 | 2% | 1.15 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 914 | 746 | 856 | 849 | 1% | 870 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.47 | 0.43 | 0.352 | 0.353 | 0% | 0.494 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.001 | 0.001 | 0% | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | 1.3 | 0.688 | 0.682 | 1% | 1.78 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.09 | 0.18 | 0.161 | 0.165 | 2% | 0.107 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 61 | 56 | 50.8 | 51.1 | 1% | 67.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1004 | 1042 | 1131 | -- | -- | 1343 |
| Temperature (Field) | deg c | -- | 15 | 10.1 | 13.1 | 11.4 | -- | -- | 15.2 |
| pH (Field) | - | -- | -- | 7.36 | 7.31 | 7.4 | -- | -- | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | Dup. | | G27-97 | Dup. | | G27-97 |
|----------------------------------|--------|-----------------------|----------|----------------------|----------------------|------------------------|-----|----------------------|------------------------|-----|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 02-May-2017 27-97 | 21-Sep-2017 27-97 | 21-Sep-2017 Dup G44 | RPD | 01-May-2018 27-97 | 01-May-2018 Dup G44 | RPD | 21-Aug-2018 27-97 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 539 | 758 | 685 | 10% | 543 | 576 | 6% | 556 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.22 | < 0.01 | < 0.01 | NC | 0.42 | 0.43 | 2% | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 68 | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 90.6 | 127 | 128 | 1% | 111 | 110 | 1% | 136 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.4 | 22.1 | 22.5 | 2% | 18.8 | 18.9 | 1% | 17.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 697 | 841 | 844 | 0% | 729 | 737 | 1% | 756 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2.86 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | < 0.01 | < 0.01 | NC | < 0.01 | < 0.01 | NC | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.33 | 0.12 | 0.12 | 0% | 0.17 | 0.15 | 13% | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | 126 | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 864 | 943 | 954 | 1% | 908 | 933 | 3% | 1040 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.06 | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.082 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.384 | 0.56 | 0.569 | 2% | 0.528 | 0.562 | 6% | 0.902 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000022 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 187 | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.004 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.003 | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.565 | 1.05 | 1.06 | 1% | 0.594 | 0.453 | 27% | 0.589 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00043 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 55.7 | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.902 | 0.737 | 0.745 | 1% | 0.529 | 0.536 | 1% | 0.282 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | 0.00003 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0004 | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 9.5 | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 5.69 | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 68.9 | 105 | 104 | 1% | 79.9 | 82.5 | 3% | 98.1 |
| Strontium, dissolved | mg/l | -- | -- | 1.01 | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 53.9 | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0028 | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1383 | 1478 | -- | -- | 1190 | -- | -- | 1031 |
| Temperature (Field) | deg c | -- | 15 | 7.5 | 14.5 | -- | -- | 5.6 | -- | -- | 16.1 |
| pH (Field) | - | -- | -- | 7.1 | 7.1 | -- | -- | 7.1 | -- | -- | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G27-97 | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|---------------------------------|---------------------|---------------|--------------|--------------|--------------|--------------|
| | | | | 25-April-2019 | 26-Sept-2019 | 26-Sept-2019 | 26-Sept-2019 | 26-Sept-2019 |
| | | | | 27-97 | 27-97 | 27-97 | 27-97 | 27-97 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 522 | 502 | 502 | 502 | 502 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.11 | 0.09 | 0.09 | 0.09 | 0.09 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 94 | 95 | 95 | 95 | 95 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 24.5 | 16.8 | 16.8 | 16.8 | 16.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 665 | 717 | 717 | 717 | 717 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.156 | 0.16 | 0.16 | 0.16 | 0.16 |
| Phosphorus | mg/l | -- | -- | 0.3 | 0.21 | 0.21 | 0.21 | 0.21 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 844 | 924 | 924 | 924 | 924 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.479 | 0.804 | 0.804 | 0.804 | 0.804 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 180 | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0015 | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.468 | 0.033 | 0.033 | 0.033 | 0.033 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 52.4 | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.428 | 0.056 | 0.056 | 0.056 | 0.056 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0061 | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 71.5 | 112 | 112 | 112 | 112 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0016 | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1468 | 978 | 978 | 978 | 978 |
| Temperature (Field) | deg c | -- | 15 | 4.3 | 16.7 | 16.7 | 16.7 | 16.7 |
| pH (Field) | - | -- | -- | 7.9 | 7.8 | 7.8 | 7.8 | 7.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-------------|---------|-----------|--------------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 27-May-20 | 5-Nov-20 (6) | 27-May-21 | 18-Aug-21 |
| | | /03)-Health | AO | 27-97 | 27-97 | 27-97 | 27-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 879 | -- | 1170 | 950 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 4.15 | -- | 4.02 | 0.68 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 134 | -- | 188 | 278 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 84.9 | -- | 19.8 | 14.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 945 | -- | 1130 | 1040 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.017 | -- | <0.002 | 0.006 |
| Phosphorus | mg/l | -- | -- | 0.42 | -- | 0.12 | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1177 | -- | 1506 | 1459 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.565 | -- | 0.647 | 1.09 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0023 | -- | 0.0025 | 0.0009 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 9.37 | -- | 9.72 | 9.15 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.18 | -- | 10.6 | 5.75 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0122 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 117 | -- | 169 | 166 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2000 | -- | 2300 | 2530 |
| Temperature (Field) | deg c | -- | 15 | 10.8 | -- | 8.7 | 15.3 |
| pH (Field) | - | -- | -- | 7.1 | -- | 6.8 | 7.22 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G27-97 | G27-97 | G27-97 | G27-97 |
|----------------------------------|--------|-------------|---------|-----------|-----------|------------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-22 | 28-Oct-22 | 05-May-23 | 16-Aug-23 |
| | | /03)-Health | AO | 27-97 | 27-97 | G27-97 | G27-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 1110 | 835 | 691 | 757 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 2.02 | 0.17 | 0.21 | 0.14 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 4 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | 78 | -- |
| Chloride | mg/l | -- | 250 | 286 | 264 | 252 | 20.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | 2091 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.9 | 8.3 | 8.6 | 11.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1180 | 1080 | 850 | 784 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | < 0.05 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | < 0.05 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 2.8 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.029 | 0.002 | < 0.002 | 0.006 |
| Phosphorus | mg/l | -- | -- | 0.11 | -- | 0.08 | 0.07 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 173 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 1702 | 1445 | 1319 | 1190 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.14 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.122 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.973 | 0.763 | 0.656 | 0.898 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | < 0.000029 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 231 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | 0.002 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0011 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | 0.0149 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 5.84 | 3.7 | 2.50 | 2.52 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | < 0.00009 | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 66.4 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.37 | 2.15 | 1.01 | 1.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | < 0.00002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | 0.0006 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | 0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 15.1 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 4.72 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 215 | 191 | 163 | 173 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 1.26 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 52.4 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | < 0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | < 0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.0036 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | < 0.005 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | < 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 2810 | 2030 | 1017 | 1817 |
| Temperature (Field) | deg c | -- | 15 | 9.8 | 11.3 | 8.9 | 16.3 |
| pH (Field) | - | -- | -- | 7.4 | 7.35 | 7.29 | 7.21 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 10-Jun-1997 | 11-Sep-1997 | 11-Jun-1998 | 19-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 72 | 47 | 63 | 84 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 26 | 21 | 10 | 49 |
| Chloride | mg/l | -- | 250 | 27 | 48 | 51 | 66 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.8 | 8.6 | 6.6 | 16 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 79 | 118 | 93 | 129 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 156 | 252 | 204 | 248 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 15 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.6 | 3.65 | 0.23 | 1.61 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 10 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.11 | 0.19 | 0.06 | 0.19 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 19 | 27 | 31 | 33 |
| Strontium, dissolved | mg/l | -- | -- | 0.075 | 0.134 | 0.098 | 0.178 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 180 | 340 | 280 | 450 |
| Temperature (Field) | deg c | -- | 15 | 8 | 17 | 15 | 16 |
| pH (Field) | - | -- | -- | 6 | 6 | 6.1 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 25-Jun-1999 | 31-Aug-1999 | 30-Sep-1999 | 31-May-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 116 | 115 | 72 | 77 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 41 | 33 | 25 | 35 |
| Chloride | mg/l | -- | 250 | 61 | 39 | 41 | 23 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14 | 12.3 | 10.1 | 14.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 125 | 116 | 134 | 75 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | 0.84 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 248 | 228 | 280 | 152 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | 0.53 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 17 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.8 | 1.67 | 2.09 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 8 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.26 | 0.22 | 0.34 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 40 | 36 | 30 | 24 |
| Strontium, dissolved | mg/l | -- | -- | 0.194 | 0.144 | 0.175 | 0.374 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 425 | 250 | 441 | 650 |
| Temperature (Field) | deg c | -- | 15 | 15 | 13 | 15 | 7 |
| pH (Field) | - | -- | -- | 6 | 6.05 | 6.46 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 18-Aug-2000 | 28-May-2001 | 08-Aug-2001 | 03-Apr-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 148 | 109 | 116 | 47 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.04 | 0.05 | 0.1 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 48 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 56 | 63 | 75 | 23 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 17.1 | 10.7 | 12.2 | 3.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 135 | 114 | 119 | 77 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | 0.02 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.06 | 0.35 | 0.11 | 0.17 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 320 | 204 | 304 | 187 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.19 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.1 | 0.09 | <0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 31 | 26 | 28 | 16 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.21 | 2.79 | 2.91 | 1.06 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 14 | 12 | 12 | 9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.39 | 0.32 | 0.32 | 0.13 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31 | 36 | 38 | 24 |
| Strontium, dissolved | mg/l | -- | -- | 0.208 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 428 | 300 | 411 | 360 |
| Temperature (Field) | deg c | -- | 15 | 20 | 9 | 21.1 | 5 |
| pH (Field) | - | -- | -- | 6.5 | 6.4 | 6.44 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 06-Aug-2002 | 13-May-2003 | 26-Aug-2003 | 26-May-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 196 | 78 | 79 | 144 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | 0.03 | <0.02 | <0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 68 | 75 | 85 | 84.8 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12.7 | 7.1 | 8.9 | 14.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 192 | 161 | 160 | 210.6 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.05 | 0.04 | 0.03 | < 0.003 |
| Phosphorus | mg/l | -- | -- | 0.07 | 0.1 | 0.08 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 378 | 340 | 339 | 376 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.08 | 0.06 | 0.09 | 0.07 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 39 | 30 | 36 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.18 | 1.16 | 0.25 | 0.53 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 23 | 21 | 17 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.295 | 0.207 | 0.214 | 0.523 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 40 | 36 | 44 | 44.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 410 | 330 | 395 | 482 |
| Temperature (Field) | deg c | -- | 15 | 20 | 6 | 12 | 13.7 |
| pH (Field) | - | -- | -- | 7.5 | 7 | 7.3 | 6.94 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 30-Aug-2004 | 26-May-2005 | 26-Aug-2005 | 01-Jun-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 101 | 116 | 137 | 140 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | <0.02 | 0.04 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 68.8 | 57 | 129 | 37 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21.1 | 9.6 | 15.9 | 13.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 157.7 | 127 | 219 | 108 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.002 | 0.03 | 0.05 | 0.02 |
| Phosphorus | mg/l | -- | -- | <0.1 | 0.15 | 0.25 | 0.07 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 302 | 300 | 484 | 253 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.03 | 0.09 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 26 | 45 | 22 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.83 | 0.74 | 0.93 | 0.18 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 15 | 26 | 13 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.22 | 0.17 | 0.23 | 0.07 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 48.5 | 37 | 57 | 33 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 410 | 462 | 850 | 300 |
| Temperature (Field) | deg c | -- | 15 | 15 | 9 | 17.2 | 15 |
| pH (Field) | - | -- | -- | 7.4 | 7.2 | 7 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 07-Sep-2006 | 29-May-2007 | 28-Aug-2007 (6) | 01-May-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 161 | 155 | -- | 73 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.16 | 0.04 | -- | 0.07 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 122 | 42 | -- | 10 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 22.3 | 15.1 | -- | 8.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 224 | 157 | -- | 65 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | < 0.010 | -- | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.04 | 0.17 | -- | 0.22 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 510 | 268 | -- | 116 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | <0.1 | -- | 0.07 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 47 | 33 | -- | 13 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.49 | 3.1 | -- | 0.12 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 26 | 18 | -- | 8 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.15 | 0.1 | -- | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 56 | 24 | -- | 13 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 800 | 310 | -- | 135 |
| Temperature (Field) | deg c | -- | 15 | 14 | 15.7 | -- | 10 |
| pH (Field) | - | -- | -- | 7.1 | 8.1 | -- | 7.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|------------------------|----------------------|--------------------|
| | | | | 08-Aug-2008 | 15-Apr-2009 G-28-97 | 14-Aug-2009 28-97 | 31-May-2010 T-7 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 207 | 81 | 268 | 310 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.05 | <0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 136 | 14 | 160 | 150 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 23.3 | 11.5 | 23.7 | 24.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 248 | 68 | 260 | 290 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | < 0.01 | 0.03 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.03 | 0.28 | 0.095 | 0.02 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 571 | 135 | 620 | 680 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.6 | 0.18 | 0.77 | 1.15 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 50 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.43 | 0.31 | 0.58 | 0.11 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 30 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.13 | 0.02 | 0.12 | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 79 | 21.9 | 91.8 | 115 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 878 | 310 | 262 | 1047 |
| Temperature (Field) | deg c | -- | 15 | 19 | 4 | 21.2 | 13.7 |
| pH (Field) | - | -- | -- | 7.1 | 8 | 6.64 | 6.79 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|------------------|
| | | | | 11-Aug-2010 | 29-Apr-2011 | 23-Aug-2011 | 04-Jun-2012 (19) |
| | | | | C-10 | R-9 | G28-97 | 28-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 315 | 100 | 291 | 300 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | <0.02 | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | <0.05 | <0.05 | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 210 | 20 | 120 | 110 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 33.6 | 13.7 | 21.0 | 27 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 360 | 61 | 290 | 250 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | 0.03 | < 0.010 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.022 | 0.18 | 0.032 | 0.21 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 830 | 132 | 630 | 556 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.31 | 0.20 | 1.19 | 1.4 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.13 | 0.52 | 0.68 | 0.4 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.16 | 0.05 | 0.18 | 0.1 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 150 | 23.9 | 84.4 | 111 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1228 | 251 | 843 | 856 |
| Temperature (Field) | deg c | -- | 15 | 21.4 | 7.1 | 20.5 | 13.2 |
| pH (Field) | - | -- | -- | 7.40 | 7.99 | 6.66 | 6.82 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|-------------|---------|-----------------|-------------|-----------------|-------------|
| | | ODWQS(169 | ODWQS- | 29-Aug-2012 (9) | 23-Apr-2013 | 06-Sep-2013 (9) | 12-May-2014 |
| | | /03)-Health | AO | G28-97 | R-17 | G28-97 | 28-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 100 | -- | 160 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.13 | -- | 0.076 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 17 | -- | 29 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 16 | -- | 21 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 69 | -- | 76 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.010 | -- | <0.010 |
| Phosphorus | mg/l | -- | -- | -- | 1.0 | -- | 0.41 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 888 | -- | 464 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.31 | -- | 0.93 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.14 | -- | 0.11 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.03 | -- | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 25.9 | -- | 51 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 321 | -- | 375 |
| Temperature (Field) | deg c | -- | 15 | -- | 6.1 | -- | 12.5 |
| pH (Field) | - | -- | -- | -- | 7.85 | -- | 7.49 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|--------------|
| | | | | 26-Aug-2014 | 20-May-2015 | 19-Aug-2015 | 17-June-2016 |
| | | | | 28-97 | 28-97 | 28-97 | 28-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 340 | 420 | 540 | 376 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | 0.075 | 0.081 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 200 | 98 | 220 | 95.6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 32 | 27 | 39 | 18.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 320 | 250 | 400 | 239 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.09 | 0.10 | 0.11 | 0.09 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 810 | 790 | 1110 | 628 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 2.5 | 1.8 | 4.0 | 1.74 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0014 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | 0.29 | 0.04 | 0.378 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.15 | 0.06 | 0.08 | 0.051 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 170 | 120 | 240 | 123 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1346 | 409 | 504 | 895 |
| Temperature (Field) | deg c | -- | 15 | 16.1 | 10.8 | 11.9 | 12.1 |
| pH (Field) | - | -- | -- | 7.76 | 7.47 | 7.64 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | | | | 02-May-2017 28-97 | 21-Sep-2017 28-97 | 01-May-2018 28-97 | 21-Aug-2018 28-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 161 | 335 | 298 | 391 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | < 0.01 | 0.06 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 120 | -- | -- |
| Chloride | mg/l | -- | 250 | 21.7 | 127 | 50.1 | 110 |
| Conductivity | µmho/c | -- | -- | -- | 1180 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.6 | 21.9 | 24.8 | 44.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 99 | 371 | 222 | 296 |
| Nitrate as N | mg/l | 10 | -- | -- | < 0.05 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 1.8 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.14 | 0.01 | 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.31 | 0.06 | 0.1 | 0.03 |
| Sulphate | mg/l | -- | 500 (3) | -- | 53 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 210 | 647 | 404 | 710 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.09 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.063 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.826 | 3.48 | 1.22 | 3.15 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000014 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 78.9 | -- | 60.9 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | 0.005 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | < 0.005 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | < 0.002 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.131 | 0.444 | 0.108 | 0.076 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00004 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 42.2 | -- | 34.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.021 | 0.241 | 0.057 | 0.119 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0003 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 1.21 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 4.4 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 4.21 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.00002 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 53.2 | 151 | 93.5 | 165 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.409 | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 23.2 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0084 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | 0.008 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 369 | 1016 | 550 | 824 |
| Temperature (Field) | deg c | -- | 15 | 7.1 | 15.8 | 5 | 17.1 |
| pH (Field) | - | -- | -- | 7.2 | 6.9 | 7.2 | 7.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G28-97 | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|-------------|---------|---------------|------------------|----------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 25-April-2019 | 26-Sept-2019 (6) | 4-Nov-2020 (6) | 27-May-2021 | 18-Aug-2021 |
| | | /03)-Health | AO | 28-97 | 28-97 | 28-97 | 28-97 | 28-97 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 300 | -- | -- | 474 | 530 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | -- | -- | 0.05 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 56.5 | -- | -- | 119 | 238 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 26.5 | -- | -- | 16.9 | 1.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 259 | -- | -- | 351 | 485 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.024 | -- | -- | 0.005 | 0.017 |
| Phosphorus | mg/l | -- | -- | 0.08 | -- | -- | 0.14 | 1.68 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 423 | -- | -- | 679 | 1089 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.16 | -- | -- | 2.13 | 3.99 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 55.6 | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.002 | -- | -- | 0.0036 | 0.0038 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.182 | -- | -- | 0.185 | 0.127 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 29.3 | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.137 | -- | -- | 0.096 | 0.138 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0061 | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 84.5 | -- | -- | 142 | 249 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0063 | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 768 | -- | -- | 1192 | 1900 |
| Temperature (Field) | deg c | -- | 15 | 3.4 | -- | -- | 9.1 | 16.4 |
| pH (Field) | - | -- | -- | 7.3 | -- | -- | 6.6 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G28-97 | G28-97 | G28-97 | G28-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-----------|-----------|
| | | | | 31-May-2022 | 28-Oct-2022 | 05-May-23 | 14-Aug-23 |
| | | | | 28-97 | 28-97 | G28-97 | G28-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 324 | 463 | 294 | 401 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 0.03 | 0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 143 | 192 | 54.4 | 151 |
| Conductivity | µmho/c | -- | -- | -- | -- | 625 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 13.4 | 10.9 | 37.0 | 50.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 323 | 420 | 129 | 280 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.016 | 0.005 | 0.141 | 0.008 |
| Phosphorus | mg/l | -- | -- | 0.09 | -- | 0.29 | 0.06 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 579 | 820 | 357 | 664 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.62 | 2.39 | 1.18 | 3.09 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 30.2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.381 | 0.078 | 0.134 | 0.239 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 12.9 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.083 | 0.082 | 0.023 | 0.056 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 121 | 169 | 70.8 | 176 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1010 | 610 | 481 | 1045 |
| Temperature (Field) | deg c | -- | 15 | 10.8 | 10.5 | 7.8 | 17.1 |
| pH (Field) | - | -- | -- | 7.2 | 7.1 | 7.42 | 7.31 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 10-Jun-1997 | 10-Sep-1997 | 11-Jun-1998 | 20-Aug-1998 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 143 | 100 | 67 | 83 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | 0.07 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | <1 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 21 | 5 | <3 | <3 |
| Chloride | mg/l | -- | 250 | 58 | 50 | 51 | 56 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.9 | 3.5 | 2.6 | 2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 293 | 256 | 323 | 380 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | 2.4 | 2.35 |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 0.22 | 0.14 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | 0.15 | 0.09 |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | 3.92 | 7.32 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 206 | 235 |
| Total Dissolved Solids | mg/l | -- | 500 | 436 | 400 | 444 | 496 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.17 | 0.12 |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.07 | 0.09 |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | 0.06 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | <0.005 | <0.005 |
| Calcium, dissolved | mg/l | -- | -- | 76 | -- | 83 | 96 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | <0.01 | 0.02 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | <0.005 | <0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.32 | 0.51 | 0.62 | 0.07 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | <0.002 | <0.002 |
| Magnesium, dissolved | mg/l | -- | -- | 25 | -- | 28 | 34 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | 0.06 | 0.02 | 0.07 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | <0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | <0.03 | <0.03 |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 3 | 4 |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 5.2 | 6 |
| Silver, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 18 | 21 | 25 | 27 |
| Strontium, dissolved | mg/l | -- | -- | 0.414 | 0.446 | 0.551 | 0.689 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 63 | 63 |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | <0.2 | <0.2 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.05 | <0.05 |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | <0.01 | <0.01 |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | <0.002 | <0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 620 | 550 | 420 | 800 |
| Temperature (Field) | deg c | -- | 15 | 2.5 | 10.5 | 10 | 8 |
| pH (Field) | - | -- | -- | 6.5 | 6.2 | 6.19 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 25-May-1999 | 30-Aug-1999 | 02-Jun-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 114 | 80 | 119 | 118 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | 0.04 | 0.06 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | <1 | 2 | 2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 10 | 10 | 15 | 5 |
| Chloride | mg/l | -- | 250 | 33 | 30 | 27 | 30 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.6 | 1.6 | 4 | 2.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 265 | 226 | 203 | 204 |
| Nitrate as N | mg/l | 10 | -- | 1.54 | 1.23 | 0.13 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.27 | 0.23 | 0.8 | 0.16 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.16 | 0.19 | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 6.7 | 8.55 | 13.4 | 0.35 |
| Sulphate | mg/l | -- | 500 (3) | 150 | 117 | 80 | 99 |
| Total Dissolved Solids | mg/l | -- | 500 | 384 | 324 | 288 | 372 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.03 | <0.03 | <0.05 | 0.24 |
| Barium, dissolved | mg/l | 1 | -- | 0.06 | 0.06 | 0.04 | 0.05 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.002 | <0.002 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.03 | 0.07 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | <0.005 | <0.005 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 68 | 56 | 50 | 52 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | 0.0006 |
| Copper, dissolved | mg/l | -- | 1 | 0.005 | <0.005 | <0.01 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | <0.01 | 0.08 | 0.26 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | <0.05 | <0.002 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 23 | 21 | 19 | 18 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | <0.01 | 0.03 | 0.02 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | <0.0002 | 0.0005 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 2 | 3 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 5.7 | 6 | 4.73 | 5.75 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 18 | 19 | 22 | 18 |
| Strontium, dissolved | mg/l | -- | -- | 0.383 | 0.41 | 0.313 | 0.334 |
| Sulfur, dissolved | mg/l | -- | -- | 44 | 43 | 30 | 30 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | <0.5 | <0.2 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | <0.05 | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 430 | 340 | 480 | 477 |
| Temperature (Field) | deg c | -- | 15 | 5 | 8 | 5 | 12.6 |
| pH (Field) | - | -- | -- | 6.34 | 6.9 | 6.42 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 26-May-2001 | 08-Aug-2001 | 04-Apr-2002 | 07-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 129 | 113 | 205 | 236 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.07 | 0.07 | 0.03 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 1 | <1 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | 8 | 17 | 13 |
| Chloride | mg/l | -- | 250 | 30 | 34 | 67 | 94 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.7 | 3.2 | 6.9 | 7.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 177 | 191 | 318 | 355 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.23 | 0.12 | 0.41 | 0.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.04 |
| Phosphorus | mg/l | -- | -- | 3.86 | 8.39 | 1.64 | 1.89 |
| Sulphate | mg/l | -- | 500 (3) | 82 | 76 | 84 | 66 |
| Total Dissolved Solids | mg/l | -- | 500 | 320 | 288 | 471 | 515 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.1 | <0.05 | <0.05 | 0.2 |
| Barium, dissolved | mg/l | 1 | -- | 0.05 | 0.05 | 0.08 | 0.08 |
| Beryllium, dissolved | mg/l | -- | -- | <0.002 | <0.002 | <0.002 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.11 | 0.07 | 0.07 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0002 | <0.0001 | 0.0001 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 43 | 45 | 81 | 91 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.001 | 0.016 | 0.005 | 0.025 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0005 | 0.0002 | 0.0005 | 0.0013 |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | <0.001 | 0.001 | 0.003 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.14 | 0.08 | <0.01 | 0.26 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 17 | 19 | 28 | 31 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.02 | 0.04 | 0.054 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.01 | 0.02 | <0.01 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.005 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 2 | 2 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 5.51 | 5.76 | 7.09 | 6.53 |
| Silver, dissolved | mg/l | -- | -- | 0.0006 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25 | 18 | 22 | 25 |
| Strontium, dissolved | mg/l | -- | -- | 0.347 | 0.312 | 0.561 | 0.573 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | 0.01 |
| Vanadium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | 0.002 | 0.008 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 300 | 350 | 340 | 420 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 9 | 5 | 16 |
| pH (Field) | - | -- | -- | 6.4 | 6.9 | 6.6 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 14-May-2003 | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 350 | 458 | 421 | 438 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.02 | <0.03 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 5 | 3 | <0.5 | 0.7 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 16 | 24 | 31 | 32 |
| Chloride | mg/l | -- | 250 | 64 | 74 | 50.5 | 47.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.8 | 10.6 | 8 | 11.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 417 | 517 | 463.6 | 422.2 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.2 | <0.2 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.2 | <0.2 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.56 | 0.52 | 0.52 | 0.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.11 | 0.12 | 0.01 | 0.012 |
| Phosphorus | mg/l | -- | -- | 1.6 | 2.05 | <0.05 | <0.05 |
| Sulphate | mg/l | -- | 500 (3) | 55 | 72 | 43.6 | 50.2 |
| Total Dissolved Solids | mg/l | -- | 500 | 595 | 728 | 578 | 582 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | <0.01 | <0.005 | <0.005 |
| Barium, dissolved | mg/l | 1 | -- | 0.09 | 0.09 | 0.106 | 0.082 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.07 | 0.06 | 0.063 | 0.048 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | 0.0002 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 106 | 128 | 119 | 108 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.019 | 0.024 | <0.005 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0012 | 0.0019 | 0.0028 | 0.0027 |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | 0.004 | 0.003 | 0.0036 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.01 | <0.03 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | 0.001 | <0.0005 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 37 | 48 | 39.9 | 37 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.081 | 0.135 | 0.346 | 0.342 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0002 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.001 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | <0.005 | <0.005 | 0.014 | 0.014 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 3 | 2.2 | 2.2 |
| Silicon, dissolved | mg/l | -- | -- | 6.1 | 5.5 | 5.4 | 5.81 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 34 | 41 | 27.2 | 29.3 |
| Strontium, dissolved | mg/l | -- | -- | 0.692 | 0.723 | 0.863 | 0.704 |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 14.9 | 16.8 |
| Thallium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | <0.001 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.007 | 0.008 | 0.0027 | 0.0027 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | <0.005 | <0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 600 | 700 | 759 | 810 |
| Temperature (Field) | deg c | -- | 15 | 7 | 12 | 8.9 | 15 |
| pH (Field) | - | -- | -- | 6.4 | 6.6 | 6.38 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 27-May-2005 | 01-Jun-2006 | 07-Sep-2006 | 29-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 392 | 388 | 324 | 296 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.02 | 0.04 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | 3 | <1 | <1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 8 | 21 | 19 | 14 |
| Chloride | mg/l | -- | 250 | 31 | 24 | 34 | 45 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.7 | 10.7 | 7.5 | 8.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 409 | 370 | 308 | 366 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.58 | 0.51 | 0.35 | 0.32 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.08 | 0.05 | 0.08 | 0.03 |
| Phosphorus | mg/l | -- | -- | 10.9 | 7.68 | 1.86 | 3.48 |
| Sulphate | mg/l | -- | 500 (3) | 49 | 30 | 22 | 45 |
| Total Dissolved Solids | mg/l | -- | 500 | 573 | 531 | 486 | 489 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.01 | 0.01 | <0.01 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.08 | 0.07 | 0.06 | 0.07 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.06 | 0.06 | 0.06 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | <0.0001 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 98 | 97 | 79 | 92 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.001 | <0.001 | 0.002 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.003 | 0.0029 | 0.0031 | 0.0102 |
| Copper, dissolved | mg/l | -- | 1 | 0.008 | 0.005 | 0.005 | 0.004 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 40 | 31 | 27 | 33 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.46 | 0.7 | 0.48 | 0.59 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | 0.015 | 0.012 | 0.009 | 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2 | 2 | 2 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 6.7 | 5.6 | 6.8 | 6.5 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31 | 26 | 29 | 32 |
| Strontium, dissolved | mg/l | -- | -- | 0.748 | 0.595 | 0.584 | 0.695 |
| Sulfur, dissolved | mg/l | -- | -- | 16.3 | 10 | 7.3 | 15 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | 0.0003 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.006 | 0.002 | 0.006 | 0.002 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 882 | 600 | 610 | 445 |
| Temperature (Field) | deg c | -- | 15 | 9 | 12 | 14 | 11.2 |
| pH (Field) | - | -- | -- | 6.8 | 6.5 | 7 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 | 14-Apr-2009 |
| | | | | | | | |
| G-29-97 | | | | | | | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 343 | 333 | 398 | 344 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.02 | 0.05 | 0.03 | 0.10 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <1 | <1 | <1 | <2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <5 | 8 | 22 | 28 |
| Chloride | mg/l | -- | 250 | 36 | 31 | 30 | 26 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.6 | 7.3 | 10.3 | 8.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 378 | 355 | 366 | 440 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | 0.41 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.52 | 0.63 | 0.61 | 1.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.09 | 0.02 | 0.02 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.21 | 3.67 | 0.05 | 15 |
| Sulphate | mg/l | -- | 500 (3) | 52 | 67 | 40 | 310 |
| Total Dissolved Solids | mg/l | -- | 500 | 546 | 531 | 565 | 555 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.25 | <0.01 | <0.01 | <0.005 |
| Barium, dissolved | mg/l | 1 | -- | 0.08 | 0.06 | 0.1 | 0.078 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.05 | 0.05 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 97 | 91 | 94 | 110 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.005 | 0.003 | 0.006 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0037 | 0.0032 | 0.005 | 0.0039 |
| Copper, dissolved | mg/l | -- | 1 | 0.004 | 0.005 | 0.006 | 0.007 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.15 | <0.03 | <0.03 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 33 | 31 | 32 | 41 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.03 | 0.87 | 1.94 | 1.2 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.008 | 0.011 | 0.012 | 0.008 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 2 | 2 | 2.7 |
| Silicon, dissolved | mg/l | -- | -- | 8.5 | 7.3 | 9.2 | 7.4 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 29 | 31 | 30 | 41 |
| Strontium, dissolved | mg/l | -- | -- | 0.641 | 0.661 | 0.598 | 0.69 |
| Sulfur, dissolved | mg/l | -- | -- | 17.3 | 22 | 13 | 32.9 |
| Thallium, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.01 | <0.01 | <0.01 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.01 | 0.008 | 0.01 | 0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | <0.01 | <0.01 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 925 | 500 | 775 | 750 |
| Temperature (Field) | deg c | -- | 15 | 11.5 | 8 | 16 | 8 |
| pH (Field) | - | -- | -- | 7.4 | 6.6 | 6.8 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|---------------------|--------------------|---------------------|-------------|
| | | | | 13-Aug-2009 | 01-Jun-2010 | 11-Aug-2010 | 29-Apr-2011 |
| | | | | 29-97 | C-6 | R-2 | S-3 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 460 | 259 | 273 | 258 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.10 | 0.10 | <0.05 | 0.10 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2 | <2 | <2 | <2 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 24 | 22 | 18 | 22 |
| Chloride | mg/l | -- | 250 | 25 | 40 | 40 | 57 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.7 | 7.6 | 6.1 | 6.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 420 | 320 | 330 | 310 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.2 | 4 | 0.6 | <1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | < 0.01 | 0.01 | 0.01 |
| Phosphorus | mg/l | -- | -- | 7.8 ⁽¹⁴⁾ | 17 ⁽¹⁴⁾ | 8.8 ⁽¹⁴⁾ | 28 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | 70 | 130 | 110 | 60 |
| Total Dissolved Solids | mg/l | -- | 500 | 605 | 460 | 480 | 484 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.005 | <0.005 | <0.005 | <0.005 |
| Barium, dissolved | mg/l | 1 | -- | 0.078 | 0.055 | 0.060 | 0.056 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | <0.0005 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | 0.05 | 0.04 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0001 | <0.0001 | 0.0001 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 110 | 85 | 87 | 82 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0047 | 0.0034 | 0.0042 | 0.0036 |
| Copper, dissolved | mg/l | -- | 1 | 0.006 | 0.005 | 0.004 | 0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | 0.0010 | <0.0005 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 38 | 26 | 27 | 26 |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.4 | 1.7 | 2.0 | 1.8 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | 0.0004 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.008 | 0.008 | 0.006 | 0.006 |
| Potassium, dissolved | mg/l | -- | -- | 2.5 | 2.1 | 2.0 | 1.9 |
| Silicon, dissolved | mg/l | -- | -- | 6.4 | 6.2 | 6.2 | 6.1 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 42 | 36 | 41 | 35 |
| Strontium, dissolved | mg/l | -- | -- | 0.70 | 0.52 | 0.52 | 0.52 |
| Sulfur, dissolved | mg/l | -- | -- | 22.1 | 21.0 | 23.3 | 16.4 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | <0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.002 | <0.001 | <0.001 | <0.001 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | 0.007 | <0.005 | 0.008 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 930 | 739 | 718 | 797 |
| Temperature (Field) | deg c | -- | 15 | 11.9 | 11.1 | 17.5 | 8.2 |
| pH (Field) | - | -- | -- | 6.47 | 6.56 | 6.48 | 7.78 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 | 23-Apr-2013 |
| | | | | G29-97 | 29-97 | 29-97 | S-2 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 323 | 290 | 340 | 360 |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.050 | <0.050 | 0.55 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2 | <2.0 | <2.0 | <2.0 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 13 | 6.3 | 20 | 46 |
| Chloride | mg/l | -- | 250 | 35 | 31 | 38 | 110 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.8 | 9.1 | 9.9 | 17 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 370 | 330 | 370 | 550 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.10 | <0.10 | <0.10 |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | <0.010 | <0.010 | <0.010 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2 | 0.61 | 0.90 | 1.7 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | <0.10 | <0.10 | <0.10 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.013 | 0.012 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 7.4 | 9.5 | 4.2 | 13 |
| Sulphate | mg/l | -- | 500 (3) | 42 | 64 | 58 | 110 |
| Total Dissolved Solids | mg/l | -- | 500 | 520 | 492 | 546 | 762 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.005 | 0.0053 | <0.0050 | <0.0050 |
| Barium, dissolved | mg/l | 1 | -- | 0.064 | 0.055 | 0.066 | 0.083 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | 0.046 | 0.051 | 0.047 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0002 | 0.00012 | 0.00015 | 0.00020 |
| Calcium, dissolved | mg/l | -- | -- | 98 | 84 | 95 | 140 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.0050 | <0.0050 | <0.0050 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0062 | 0.0049 | 0.0054 | 0.0077 |
| Copper, dissolved | mg/l | -- | 1 | 0.005 | 0.0049 | 0.0041 | 0.0055 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Magnesium, dissolved | mg/l | -- | -- | 30 | 28 | 32 | 45 |
| Manganese, dissolved | mg/l | -- | 0.05 | 3.8 | 3.1 | 3 | 4.2 |
| Mercury | mg/l | -- | -- | -- | <0.0001 | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.0005 | <0.00050 | <0.00050 | <0.00050 |
| Nickel, dissolved | mg/l | -- | -- | 0.008 | 0.0067 | 0.0069 | 0.0085 |
| Potassium, dissolved | mg/l | -- | -- | 1.9 | 1.7 | 2 | 2.3 |
| Silicon, dissolved | mg/l | -- | -- | 6.0 | 5.7 | 6 | 6.4 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 32 | 28 | 31 | 35 |
| Strontium, dissolved | mg/l | -- | -- | 0.64 | 0.54 | 0.6 | 0.82 |
| Sulfur, dissolved | mg/l | -- | -- | 15.5 | 20.1 | 22.8 | 35.8 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.000050 | <0.000050 | <0.000050 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.0050 | <0.0050 | <0.0050 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0010 | 0.0010 | 0.0014 | 0.0017 |
| Zinc, dissolved | mg/l | -- | 5 | 0.008 | <0.0050 | <0.0050 | <0.0050 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.0010 | <0.0010 | <0.0010 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 727 | 680 | 851 | 987 |
| Temperature (Field) | deg c | -- | 15 | 11.6 | 9.9 | 11.1 | 9.7 |
| pH (Field) | - | -- | -- | 6.56 | 6.68 | 6.67 | 6.88 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|------------------------------|--------------------|-------------|----------------------|-------------|-------------|
| | | | | 06-Sep-2013 | 12-May-2014 | 26-Aug-2014 | 20-May-2015 |
| | | | | 29-97 | 29-97 | 29-97 | 29 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 490 | 390 | 460 | 430 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.10 | 0.11 | 0.14 | 0.091 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | <2.0 | <2.0 | <2.0 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 31 | 28 | 24 | 39 |
| Chloride | mg/l | -- | 250 | 57 | 65 | 37 | 34 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12 | 15 | 12 | 15 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 570 | 540 | 510 | 520 |
| Nitrate as N | mg/l | 10 | -- | 0.32 | <0.10 | 0.43 | 0.32 |
| Nitrite as N | mg/l | 1.0 | -- | <0.010 | <0.010 | 0.025 | 0.020 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.99 | <1.0 ⁽¹⁹⁾ | 2.0 | 1.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.32 | <0.10 | 0.45 | 0.34 |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.013 | <0.010 | <0.010 | 0.014 |
| Phosphorus | mg/l | -- | -- | 14 | 15 | 9.4 | 10 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | 92 | 200 | 95 | 130 |
| Total Dissolved Solids | mg/l | -- | 500 | 774 | 774 | 682 | 928 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.0050 | 0.005 | <0.0050 | 0.011 |
| Barium, dissolved | mg/l | 1 | -- | 0.094 | 0.085 | 0.079 | 0.073 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.07 | 0.052 | 0.059 | 0.068 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.00024 | 0.0002 | 0.00022 | 0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 150 | 150 | 130 | 140 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | <0.005 | <0.0050 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0083 | 0.0071 | 0.0077 | 0.0063 |
| Copper, dissolved | mg/l | -- | 1 | 0.0061 | 0.007 | 0.0075 | 0.006 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | <0.1 | <0.1 | <0.1 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 48 | 44 | 42 | 42 |
| Manganese, dissolved | mg/l | -- | 0.05 | 5.1 | 5.1 | 4.7 | 4.5 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | <0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.0094 | 0.009 | 0.0081 | 0.007 |
| Potassium, dissolved | mg/l | -- | -- | 2.4 | 2.1 | 2.2 | 2 |
| Silicon, dissolved | mg/l | -- | -- | 6.5 | 6.1 | 6 | 5.8 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | <0.0001 | <0.00010 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 39 | 31 | 34 | 25 |
| Strontium, dissolved | mg/l | -- | -- | 0.88 | 0.86 | 0.79 | 0.79 |
| Sulfur, dissolved | mg/l | -- | -- | 34.4 | 59 | 32 | 35 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | <0.00005 | <0.000050 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | <0.005 | <0.0050 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0016 | 0.0014 | 0.0013 | 0.0014 |
| Zinc, dissolved | mg/l | -- | 5 | <0.0050 | 0.008 | <0.0050 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1079 | 1016 | 1121 | 1121 |
| Temperature (Field) | deg c | -- | 15 | 11.1 | 12.4 | 12.1 | 11.9 |
| pH (Field) | - | -- | -- | 6.38 | 6.77 | 7.80 | 6.84 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|--------------|-------------|-------------|
| | | | | 18-Aug-2015 | 16-June-2016 | 22-Aug-2016 | 02-May-2017 |
| | | | | 29-97 | 29-97 | 29-97 | 29-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 470 | 590 | 614 | 435 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.055 | < 0.01 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 40 | 218 | 124 | 30 |
| Chloride | mg/l | -- | 250 | 35 | 49 | 36.1 | 15.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14 | 16.1 | 14.7 | 10.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 540 | 661 | 652 | 475 |
| Nitrate as N | mg/l | 10 | -- | <0.10 | 1.3 | 0.4 | 2.23 |
| Nitrite as N | mg/l | 1.0 | -- | <0.010 | < 0.1 | < 0.1 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.83 | 1.4 | 1.5 | 1.25 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.012 | 0.07 | 0.04 | 0.02 |
| Phosphorus | mg/l | -- | -- | 8.4 | 4.61 | 17.2 | 3.74 |
| Sulphate | mg/l | -- | 500 (3) | 130 | 122 | 79 | 32 |
| Total Dissolved Solids | mg/l | -- | 500 | 800 | 890 | 809 | 510 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | <0.0050 | 0.05 | 0.05 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | 0.076 | 0.108 | 0.105 | 0.075 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.051 | 0.06 | 0.09 | 0.053 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.00015 | 0.00015 | 0.00007 | 0.000127 |
| Calcium, dissolved | mg/l | -- | -- | 140 | 176 | 173 | 127 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | < 0.002 | 0.01 | < 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0064 | 0.0079 | 0.0068 | 0.01 |
| Copper, dissolved | mg/l | -- | 1 | 0.0047 | 0.005 | 0.005 | 0.005 |
| Iron, dissolved | mg/l | -- | 0.3 | <0.1 | 0.017 | 0.056 | 0.008 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | < 0.00002 | < 0.00002 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 45 | 53.4 | 53.4 | 38.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.5 | 5.36 | 4.61 | 3.66 |
| Mercury | mg/l | -- | -- | <0.0001 | < 0.00002 | < 0.00002 | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | 0.0004 | 0.0004 | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | 0.0072 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 2.2 | 2.3 | 2.7 | 1.8 |
| Silicon, dissolved | mg/l | -- | -- | 5.9 | 6.62 | 7.29 | 6.66 |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 37 | 47.9 | 52.4 | 30.9 |
| Strontium, dissolved | mg/l | -- | -- | 0.78 | 1.04 | 0.954 | 0.737 |
| Sulfur, dissolved | mg/l | -- | -- | 36 | 39.7 | 32.8 | 16.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.00094 | 0.0042 | 0.0054 | 0.0052 |
| Zinc, dissolved | mg/l | -- | 5 | <0.0050 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1226 | 1115 | 1206 | 864 |
| Temperature (Field) | deg c | -- | 15 | 12.2 | 9.8 | 9.1 | 8.2 |
| pH (Field) | - | -- | -- | 6.94 | 6.8 | 6.6 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|---------------|
| | | | | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 24-April-2019 |
| | | | | 29-97 | 29-97 | 29-97 | 29-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 296 | 464 | 487 | 454 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | 0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 101 | 99 | 124 | 84 |
| Chloride | mg/l | -- | 250 | 7.9 | 28.8 | 15.7 | 20.3 |
| Conductivity | µmho/c | -- | -- | 676 | 1030 | 1040 | 978 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.1 | 13.2 | 16.1 | 19.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 357 | 545 | 556 | 496 |
| Nitrate as N | mg/l | 10 | -- | 2.65 | 0.12 | 0.77 | 0.33 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.2 | 1.8 | 1.7 | 1.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.02 | 0.01 | 0.041 |
| Phosphorus | mg/l | -- | -- | 5.02 | 12.3 | 16.5 | 13.9 |
| Sulphate | mg/l | -- | 500 (3) | 19 | 53 | 41 | 63 |
| Total Dissolved Solids | mg/l | -- | 500 | 329 | 590 | 594 | 570 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.06 | 0.08 | 0.07 | 0.07 |
| Barium, dissolved | mg/l | 1 | -- | 0.055 | 0.093 | 0.091 | 0.078 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.085 | 0.074 | 0.075 | 0.062 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000034 | 0.000144 | 0.000179 | 0.000139 |
| Calcium, dissolved | mg/l | -- | -- | 95 | 149 | 153 | 136 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | < 0.005 | 0.0055 | 0.0074 | 0.0067 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | 0.0053 | 0.0067 | 0.0065 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.039 | 0.021 | 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 29.1 | 42 | 42.3 | 38 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.38 | 3.52 | 3.83 | 3.48 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0003 | 0.0002 | 0.0004 | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.01 | 0.01 | 0.0092 |
| Potassium, dissolved | mg/l | -- | -- | 2.1 | 2.3 | 2.5 | 2.2 |
| Silicon, dissolved | mg/l | -- | -- | 7.1 | 7.69 | 6.82 | 6.15 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 29.6 | 33.2 | 43.3 | 34.9 |
| Strontium, dissolved | mg/l | -- | -- | 0.535 | 0.914 | 0.876 | 0.912 |
| Sulfur, dissolved | mg/l | -- | -- | 10 | 17.3 | 19 | 17.5 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0025 | 0.001 | 0.0014 | 0.0013 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | 0.006 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | -- | 0.018 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 551 | 748 | 633 | 1051 |
| Temperature (Field) | deg c | -- | 15 | 9.3 | 8.2 | 9.2 | 7.8 |
| pH (Field) | - | -- | -- | 6.9 | 6.6 | 6.6 | 6.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G29-97 | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|-------------|---------|--------------|-------------|------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 25-Sept-2019 | 26-May-2020 | 4-Nov-2020 | 26-May-2021 | 17-Aug-2021 |
| | | /03)-Health | AO | 29-97 | 29-97 | 29-97 | 29-97 | 29-97 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 401 | 431 | 385 | 488 | 478 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.28 | 0.28 | 0.03 | 0.03 | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | < 3 | <3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 94 | 106 | 138 | 114 |
| Chloride | mg/l | -- | 250 | 4.4 | 21.6 | 16 | 22 | 13.4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12 | 15.3 | 15.7 | 17.4 | 14.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 440 | 526 | 527 | 547 | 1350 |
| Nitrate as N | mg/l | 10 | -- | -- | < 0.05 | 0.06 | 0.11 | 0.09 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | < 0.05 | 0.1 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 1.3 | 1.2 | 1.7 | 1.8 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 4.13 | 0.08 | 0.04 | 0.017 | 0.046 |
| Phosphorus | mg/l | -- | -- | 7.37 | 7.83 | 10.5 | 18.6 | 31.7 |
| Sulphate | mg/l | -- | 500 (3) | -- | 76 | 79 | 118 | 86 |
| Total Dissolved Solids | mg/l | -- | 500 | 456 | 567 | 546 | 672 | 615 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.07 | 0.08 | 0.08 | 0.06 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.08 | 0.078 | 0.085 | 0.086 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.094 | 0.064 | 0.086 | 0.08 | 0.083 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | 0.000133 | 0.000165 | 0.000153 | 0.000155 |
| Calcium, dissolved | mg/l | -- | -- | -- | 147 | 151 | 151 | 156 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0074 | 0.0083 | 0.007 | 0.0071 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0079 | 0.0088 | 0.0079 | 0.0057 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | 0.026 | 0.025 | 0.013 | 0.027 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00003 | 0.00004 | < 0.00004 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 38.8 | 36.4 | 41.2 | 37.8 |
| Manganese, dissolved | mg/l | -- | 0.05 | 3.47 | 4.27 | 3.94 | 4.31 | 4.94 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0003 | 0.0004 | 0.0006 | 0.0003 |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0098 | 0.0093 | 0.0095 | 0.008 |
| Potassium, dissolved | mg/l | -- | -- | -- | 2 | 2.3 | 2.7 | 2.3 |
| Silicon, dissolved | mg/l | -- | -- | -- | 6.34 | 6.98 | 6.62 | 6.43 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 34.1 | 19.3 | 26.2 | 39.6 | 27.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.888 | 0.879 | 0.987 | 0.93 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 22.5 | 28.8 | 38.3 | 25.4 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0013 | 0.0014 | 0.0011 | 0.0013 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 787 | 599 | 841 | 944 | 1080 |
| Temperature (Field) | deg c | -- | 15 | 10.2 | 7.6 | 8.1 | 9.9 | 9.6 |
| pH (Field) | - | -- | -- | 7.4 | 7.3 | 7.3 | 7.95 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G29-97 | G29-97 | G29-97 | G29-97 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-----------|-----------|
| | | | | 31-May-2022 | 28-Oct-2022 | 04-May-23 | 15-Aug-23 |
| | | | | 29-97 | 29-187 | G29-97 | G29-97 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 425 | 476 | 431 | 417 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.06 | 0.02 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 100 | 97 | 27 | 96 |
| Chloride | mg/l | -- | 250 | 15.4 | 19.5 | 9.9 | 5.2 |
| Conductivity | µmho/c | -- | -- | 1043 | 1098 | 942 | 815 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 17.2 | 11.9 | 12.9 | 12.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 549 | 561 | 494 | 399 |
| Nitrate as N | mg/l | 10 | -- | 0.11 | 0.06 | 3.73 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | 4.64 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.1 | 0.9 | 1.0 | 0.7 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.016 | 0.014 | 0.005 | 0.010 |
| Phosphorus | mg/l | -- | -- | 3.72 | 18.7 | 1.34 | 0.72 |
| Sulphate | mg/l | -- | 500 (3) | 124 | 127 | 84 | 26 |
| Total Dissolved Solids | mg/l | -- | 500 | 626 | 672 | 560 | 446 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.06 | 0.07 | 0.09 | 0.06 |
| Barium, dissolved | mg/l | 1 | -- | 0.082 | 0.091 | 0.104 | 0.061 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.073 | 0.09 | 0.071 | 0.081 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000113 | 0.000209 | 0.000165 | 0.000120 |
| Calcium, dissolved | mg/l | -- | -- | 157 | 161 | 145 | 116 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0013 | 0.008 | 0.0073 | 0.0058 |
| Copper, dissolved | mg/l | -- | 1 | 0.0115 | 0.0071 | 0.0083 | 0.0059 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.005 | 0.011 | 0.007 | <0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | < 0.00004 | 0.00003 | <0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 38.4 | 38.6 | 32.1 | 26.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.07 | 5.17 | 4.83 | 3.71 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00004 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0005 | 0.0003 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | 0.0077 | < 0.01 | < 0.01 | 0.0066 |
| Potassium, dissolved | mg/l | -- | -- | 2.4 | 2.6 | 1.8 | 1.9 |
| Silicon, dissolved | mg/l | -- | -- | 6.63 | 5.13 | 5.37 | 4.84 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 30.5 | 32 | 24.4 | 25.9 |
| Strontium, dissolved | mg/l | -- | -- | 0.972 | 0.888 | 0.892 | 0.684 |
| Sulfur, dissolved | mg/l | -- | -- | 42 | 40.3 | 28.3 | 11.9 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.001 | 0.0013 | 0.0012 | 0.0011 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1090 | 770 | 914 | 738 |
| Temperature (Field) | deg c | -- | 15 | 10.1 | 9.4 | 8.2 | 10.9 |
| pH (Field) | - | -- | -- | 6.97 | 6.77 | 6.77 | 6.99 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G31A-98 | G31A-98 | G31A-98 | G31A-98 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Jun-1998 | 20-Aug-1998 (5) | 25-May-1999 | 02-Jun-2000 (5) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 439 | -- | 419 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.63 | -- | 1.82 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | -- | <1 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 18 | -- | 22 | -- |
| Chloride | mg/l | -- | 250 | 73 | -- | 65 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.1 | -- | 6.5 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 64 | -- | 13 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | 0.12 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | -- | <0.1 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.82 | -- | 1.82 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0.19 | -- | <0.1 | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 3.13 | -- | 1.19 | -- |
| Sulphate | mg/l | -- | 500 (3) | 7 | -- | <3 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 590 | -- | 600 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 1.67 | -- | <0.03 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.12 | -- | 0.06 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.93 | -- | 0.96 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | -- | <0.005 | -- |
| Calcium, dissolved | mg/l | -- | -- | 6 | -- | 2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | <0.01 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.64 | -- | <0.01 | -- |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | -- | <0.005 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 2.01 | -- | 0.17 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | <0.002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 12 | -- | 2 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.04 | -- | <0.01 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | <0.0002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | -- | <0.01 | -- |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | 20 | -- | 6 | -- |
| Silicon, dissolved | mg/l | -- | -- | 4.1 | -- | 3.5 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 174 | -- | 239 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.086 | -- | 0.068 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 4 | -- | <3 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | -- | <0.2 | -- |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | <0.05 | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | <0.01 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 790 | -- | 1000 | -- |
| Temperature (Field) | deg c | -- | 15 | 11.5 | -- | 9 | -- |
| pH (Field) | - | -- | -- | 6.2 | -- | 9.2 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G31A-98 | G31A-98 | G31A-98 | G31A-98 |
|----------------------------------|--------|-----------------------|----------|-----------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 18-Aug-2000 (4) | 02-May-2017 | 21-Sep-2017 | 01-May-2018 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 434 | 432 | 427 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.87 | 0.7 | 0.65 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 66.7 | 74.6 | 88.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 10.2 | 15.8 | 13.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 15 | 11 | 11 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 1.58 | 1.42 | 0.91 |
| Phosphorus | mg/l | -- | -- | -- | 12.4 | 11 | 9.36 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 577 | 562 | 634 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.885 | 1.05 | 1.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.844 | 0.035 | 0.033 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.03 | 0.005 | 0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 235 | 266 | 279 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1007 | 913 | 890 |
| Temperature (Field) | deg c | -- | 15 | -- | 8.2 | 9.4 | 8.9 |
| pH (Field) | - | -- | -- | -- | 8.8 | 9.3 | 9.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G31A-98 | Dup. | RPD | G31A-98 | Dup. | RPD | |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-----|---------------|---------------|-----|--|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 21-Aug-2018 | 21-Aug-2018 | | 25-April-2019 | 25-April-2019 | | |
| | | | | | G45 | | | G45 | | |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 408 | 411 | 1% | 380 | 376 | 1% | |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Ammonia Nitrogen | mg/l | -- | -- | 0.55 | 0.56 | 2% | 0.59 | 0.58 | 2% | |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chloride | mg/l | -- | 250 | 87.7 | 87.8 | 0% | 93.9 | 94.2 | 0% | |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- | |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.4 | 9.2 | 9% | 6.2 | 6.1 | 2% | |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 10 | 10 | 0% | 8 | 8 | 0% | |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate, Ortho | mg/l | -- | -- | 0.93 | 0.95 | 2% | 1.18 | 1.16 | 2% | |
| Phosphorus | mg/l | -- | -- | 23.3 | 23.6 | 1% | 1.33 | 1.33 | 0% | |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- | |
| Total Dissolved Solids | mg/l | -- | 500 | 594 | 598 | 1% | 569 | 565 | 1% | |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Metals | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Boron, dissolved | mg/l | 5 | -- | 0.902 | 0.904 | 0% | 0.907 | 0.906 | 0% | |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 1 | 0.96 | -- | |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | < 0.0001 | < 0.0001 | -- | |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | |
| Iron, dissolved | mg/l | -- | 0.3 | 0.039 | 0.035 | 11% | 0.007 | 0.006 | 15% | |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 1.37 | 1.34 | -- | |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.004 | 0.004 | 0% | 0.004 | 0.003 | 29% | |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- | |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | < 0.0002 | < 0.0002 | -- | |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sodium, dissolved | mg/l | -- | 200 (4) | 252 | 254 | 1% | 238 | 236 | 1% | |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0002 | 0.0002 | 0% | |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Field Measurements | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 852 | -- | -- | 1126 | -- | -- | |
| Temperature (Field) | deg c | -- | 15 | 9.2 | -- | -- | 8.0 | -- | -- | |
| pH (Field) | - | -- | -- | 9.0 | -- | -- | 8.6 | -- | -- | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G31A-98 | Dup. | RPD | G31A-98 | G31A-98 | RPD |
|----------------------------------|--------|---------------------------------|---------------------|--------------|--------------|-----|-------------|-------------|---------|
| | | | | 26-Sept-2019 | 26-Sept-2019 | | 27-May-2020 | 27-May-2020 | |
| | | | | | G45 | | G31A-98 | Dup G46 | |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 409 | 419 | 2% | 411 | 397 | 3.47% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.02 | 1.04 | 2% | 1.6 | 0.77 | 70.04% |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 99.9 | 98.8 | 1% | 85.1 | 92.5 | 8.33% |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7 | 6.9 | 1% | 5.8 | 4.8 | 18.87% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 11 | 11 | 0% | 11 | 8 | 31.58% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 6.18 | 6.63 | 7% | 2.55 | 1.19 | 72.73% |
| Phosphorus | mg/l | -- | -- | 19.9 | 20.6 | 3% | 11 | 0.52 | 181.94% |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 612 | 617 | 1% | 586 | 582 | 0.68% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.02 | 1.02 | 0% | 0.975 | 0.983 | 0.82% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | < 0.0001 | < 0.001 | 0.00% |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.029 | 0.031 | 7% | 0.056 | 0.06 | 6.90% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.005 | 0.005 | 0% | 0.004 | 0.005 | 22.22% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | 0.0004 | 0.0003 | 28.57% |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 257 | 257 | 0% | 242 | 242 | 0.00% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 907 | -- | -- | 1043 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 9.9 | -- | -- | 8.7 | -- | -- |
| pH (Field) | - | -- | -- | 9.3 | -- | -- | 7.5 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G31A-98 | G31A-98 | G31A-98 |
|----------------------------------|--------|-------------|---------|------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 5-Nov-2020 | 27-May-2021 | 18-Aug-2021 |
| | | /03)-Health | AO | G31A-98 | G31A-98 | G31A-98 |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 384 | 429 | 433 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.51 | 0.46 | 0.53 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 86.9 | 84.6 | 101 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.1 | 5.5 | 6.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 11 | 13 | 13 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.958 | 0.915 | 0.899 |
| Phosphorus | mg/l | -- | -- | 6.06 | 4.62 | 4.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 575 | 618 | 629 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- |
| Metals | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.983 | 0.988 | 0.99 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | 0.0003 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.042 | 0.32 | 0.253 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.005 | 0.012 | 0.012 |
| Mercury | mg/l | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 248 | 263 | 257 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 985 | 1061 | 1170 |
| Temperature (Field) | deg c | -- | 15 | 9.6 | 10.6 | 10 |
| pH (Field) | - | -- | -- | 8.8 | 8.5 | 9.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G31A-98 | G31A-98 | G31A-98 | | G31A-98 | G31A-98 | | G31A-98 | G31A-98 | |
|----------------------------------|--------|-------------|--------------------|-----------------------------|-------------|-----------|--------|-----------|-----------------|---------|-----------|-----------------|--------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 ⁽¹²⁾ | 28-Oct-2022 | 28-Oct-22 | | 05-May-23 | 05-May-23 | | 14-Aug-23 | 14-Aug-23 | |
| | | /03)-Health | AO | G31A-98 | G31A-98 | G31A-98 | RDP | G31A-98 | G31A-98 | RDP | G31-98A | G31A-98 | RDP |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 405 | 402 | 0.74% | 399 | 409 | 2.48% | 425 | 421 | 0.95% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.6 | 0.81 | 29.79% | 0.35 | 0.79 | 77.19% | 0.46 | 0.47 | 2.15% |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 88.1 | 87.3 | 0.91% | 102 | 98.8 | 3.19% | 88.0 | 87.3 | 0.80% |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | 1034 | 1038 | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.4 | 4.4 | 25.64% | 2.7 | 5.7 | 71.43% | 5.6 | 6.0 | 6.90% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 11 | 11 | 0.00% | 9 | 8 | 11.76% | 11.4 | 10.6 | 7.27% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.729 | 0.83 | 12.36% | 0.621 | 0.060 | 164.76% | 0.745 | 0.708 | 5.09% |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- | 0.77 | 1.69 | -- | 2.32 | 2.47 | -- |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 567 | 574 | 1.23% | 596 | 600 | 0.67% | 569 | 569 | 0.00% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.909 | 0.928 | 2.07% | 0.979 | 0.953 | 2.69% | 0.980 | 0.986 | 0.61% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 1.17 | 1.03 | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.073 | 0.115 | 44.68% | 0.021 | 0.060 | NC | 0.121 | 0.048 | 86.39% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | 1.42 | 1.25 | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.005 | 0.005 | 0.00% | 0.004 | 0.004 | 0.00% | 0.007 | 0.004 | NC |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 233 | 241 | 3.38% | 247 | 247 | 0.00% | 251 | 251 | 0.00% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 900 | -- | -- | 1008 | Average: 33.42% | | 908 | Average: 11.02% | |
| Temperature (Field) | deg c | -- | 15 | -- | 8.7 | -- | -- | 9.9 | -- | -- | 11.2 | -- | -- |
| pH (Field) | - | -- | -- | -- | 9.24 | -- | -- | 9.23 | -- | -- | 9.48 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (5) | (4) (6) | G31B-98 | G31B-98 | G31B-98 | G31B-98 |
|----------------------------------|--------|-----------------------|----------|-------------|-----------------|-----------------|-----------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 11-Jun-1998 | 20-Aug-1998 (7) | 02-Jun-2000 (7) | 18-Aug-2000 (7) |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 496 | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.78 | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 31 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <3 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 72 | -- | -- | -- |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 6.7 | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 308 | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | 0.6 | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | <0.1 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.78 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | 0 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 1.18 | -- | -- | -- |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | 42 | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 612 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | 80.3 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- (20) | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- (20) | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- (20) | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 36 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- (20) | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- (20) | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- (20) | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | 0.024 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 53 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- (20) | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 118 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 197 | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 14 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- (20) | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- (20) | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 800 | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 10 | -- | -- | -- |
| pH (Field) | - | -- | -- | 7.1 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (2) | G31B-98 | G31B-98 | RPD | G31B-98 |
|----------------------------------|--------|------------------------|--------------------|-------------|------------------------|------|-----------|
| | | ODWQS (169 /03)-Health | ODWQS-AO | 02-May-2017 | 02-May-2017 DUP G41 | | 21-Sep-17 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 395 | 401 | 2% | 395 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.55 | 0.62 | 12% | 0.45 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 74.8 | 75.6 | 1% | 80.6 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.3 | 8.6 | 4% | 8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 10 | 4 | 86% | 9 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.75 | 0.72 | 4% | 0.73 |
| Phosphorus | mg/l | -- | -- | 2.42 | 2.27 | 6% | 1.15 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 554 | 557 | 1% | 568 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.874 | 0.877 | 0% | 1.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.393 | 0.016 | 184% | 0.025 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.019 | 0.004 | 130% | 0.004 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 233 | 235 | 1% | 264 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1014 | -- | -- | 918 |
| Temperature (Field) | deg c | -- | 15 | 8.4 | -- | -- | 9.0 |
| pH (Field) | - | -- | -- | 8.6 | -- | -- | 9.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (2) | G31B-98 | RPD | G31B-98 | G31B-98 |
|----------------------------------|--------|-----------------------|--------------------|----------------------|-----|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 21-Sep-17 DUP G45 | | 21-Sep-17 DUP G45 | 21-Sep-17 DUP G45 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 400 | 1% | 400 | 400 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.46 | 2% | 0.46 | 0.46 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 81.4 | 1% | 81.4 | 81.4 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.6 | 5% | 7.6 | 7.6 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 9 | 0% | 9 | 9 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.7 | 4% | 0.7 | 0.7 |
| Phosphorus | mg/l | -- | -- | 1.11 | 4% | 1.11 | 1.11 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 568 | 0% | 568 | 568 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.04 | 0% | 1.04 | 1.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.026 | 4% | 0.026 | 0.026 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.004 | 0% | 0.004 | 0.004 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 263 | 0% | 263 | 263 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (5) | (4) (6) | G31B-98 | G31B-98 | G31B-98 | G31B-98 |
|----------------------------------|--------|-------------|--------------------|-----------|-----------|----------|----------|
| | | ODWQS(169 | ODWQS- | 21-Sep-17 | 27-May-20 | 5-Nov-20 | 5-Nov-20 |
| | | /03)-Health | AO | DUP G45 | G31B-98 | G31B-98 | DUP #3 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 400 | 394 | 373 | 370 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.46 | 0.69 | 0.53 | 0.53 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 81.4 | 91.3 | 91.9 | 92.1 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.6 | 4.8 | 6.7 | 6.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 9 | 10 | 9 | 9 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.7 | 0.958 | 0.789 | 0.745 |
| Phosphorus | mg/l | -- | -- | 1.11 | 3.03 | 1.17 | 1.06 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 568 | 580 | 576 | 574 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1.04 | 0.976 | 1.01 | 1.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.026 | 0.03 | 0.019 | 0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.004 | 0.003 | 0.005 | 0.005 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0004 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 263 | 242 | 251 | 252 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1029 | 951 | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 10 | 8.4 | -- |
| pH (Field) | - | -- | -- | -- | 7.5 | 9.5 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (5) | (4) (6) | G31B-98 | | RDP | |
|----------------------------------|--------|-------------|--------------------|-----------|---------|--------|--------|
| | | ODWQS(169 | ODWQS- | 27-May-21 | G31B-98 | | |
| | | /03)-Health | AO | 27-May-21 | DUP #2 | | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 0.81% | 416.00 | 414.00 | 0.48% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.00% | 0.18 | 0.22 | 20.00% |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 0.22% | 92.10 | 92.10 | 0.00% |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.03% | 5.50 | 6.70 | 19.67% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 0.00% | 10.00 | 8.00 | 22.22% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 5.74% | 0.66 | 0.64 | 2.61% |
| Phosphorus | mg/l | -- | -- | 9.87% | 1.13 | 1.03 | 9.26% |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 0.35% | 613.00 | 607.00 | 0.98% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.00% | 1.00 | 0.99 | 0.80% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.00% | 0.0001 | 0.0001 | 0.00% |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 5.13% | 0.06 | 0.06 | 5.13% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.00% | 0.01 | 0.013 | 16.67% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 0.40% | 262.00 | 257.00 | 1.93% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1088.00 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 7.90 | -- | -- |
| pH (Field) | - | -- | -- | -- | 8.50 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (1) | (4) (3) | G31B-98 | G31B-98 |
|----------------------------------|---------|-------------|--------------------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 18-Aug-21 | 18-Aug-21 |
| | | /03)-Health | AO | G31B-98 | DUP #2 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 414 | 412 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.36 | 0.24 |
| Bicarbonate | mg/l | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 107 | 108 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- |
| Conductivity | µmho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.3 | 5.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 9 | 10 |
| Nitrate as N | mg/l | 10 | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.713 | 0.657 |
| Phosphorus | mg/l | -- | -- | 0.81 | 0.87 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽⁴⁾ | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 623 | 625 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 1 | 1.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.033 | 0.056 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.004 | 0.005 |
| Mercury | mg/l | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 257 | 259 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- |
| Field Measurements | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 1150 | -- |
| Temperature (Field) | deg c | -- | 15 | 9.7 | -- |
| pH (Field) | - | -- | -- | 9.4 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (2) (5) | (4) (6) | G31B-98 | G31B-98 | G31B-98 | G31B-98 |
|----------------------------------|--------|-------------|--------------------|-------------------------------|-----------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 ⁽¹⁾⁽²⁾ | 28-Oct-22 | 05-May-23 | 14-Aug-23 |
| | | /03)-Health | AO | G31B-98 | G31B-98 | G31B-98 | G31-98B |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 396 | 411 | 411 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.46 | 0.43 | 0.10 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | 92.2 | 97.3 | 90.5 |
| Chloride, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/c | -- | -- | -- | -- | 1038 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.1 | 4.8 | 5.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 8 | 11 | 8.81 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.643 | 0.763 | 0.666 |
| Phosphorus | mg/l | -- | -- | -- | -- | 1.63 | 0.81 |
| Phosphorus (dissolved reactive) | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate, dissolved | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 565 | 601 | 565 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.889 | 0.962 | 0.996 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 1.46 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.008 | 0.063 | 0.023 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 1.71 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.005 | 0.005 | 0.004 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 224 | 248 | 250 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 910 | 990 | 892 |
| Temperature (Field) | deg c | -- | 15 | -- | 8.9 | 10.4 | 9.8 |
| pH (Field) | - | -- | -- | -- | 9.1 | 9.17 | 9.48 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | G32A-98 | |
|----------------------------------|-------|---------------------------------|--------------------|-------------|-----------------|-------------|-----------------|-----------------|-------------|-------------|-----------------|-------------|-----------|-----------|-----------|
| | | | | 12-Jun-1998 | 20-Aug-1998 (7) | 25-May-1999 | 02-Jun-2000 (7) | 18-Aug-2000 (7) | 17-Aug-2021 | 10-Nov-2021 | 31-May-2022(12) | 28-Oct-2022 | 04-May-23 | 15-Aug-23 | |
| | | | | G32A-98 | | | | | | | | | | | |
| General Chemistry | | | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 367 | -- | 359 | -- | -- | -- | 381 | 342 | -- | 344 | 354 | 358 |
| Ammonia Nitrogen | mg/l | -- | -- | 0.47 | -- | 0.43 | -- | -- | -- | 0.65 | 0.54 | -- | 0.68 | 0.26 | 0.49 |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2 | -- | 20 | -- | -- | -- | 8 | <3 | -- | < 3 | 13 | 7 |
| Chemical Oxygen Demand | mg/l | -- | -- | 2 | -- | 20 | -- | -- | -- | 125 | 76 | -- | -- | 38 | 51 |
| Chloride | mg/l | -- | 250 | 76 | -- | 66 | -- | -- | -- | 63.3 | 58.5 | -- | -- | 61.4 | 55.2 |
| Conductivity (Field) | uS/cm | -- | -- | 660 | -- | 890 | -- | -- | -- | 970 | 850 | -- | 750 | 819 | 739 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.8 | -- | 4.4 | -- | -- | -- | 5.1 | 4.5 | -- | 2.7 | 3.9 | 4.4 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 24 | -- | 7 | -- | -- | -- | 4 | 36 | -- | 4 | 24 | 4.17 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | 0.1 | -- | -- | -- | < 0.05 | 0.26 | -- | < 0.05 | 0.05 | <0.05 |
| Nitrite as N | mg/l | 1 | -- | <0.1 | -- | <0.1 | -- | -- | -- | 0.18 | <0.05 | -- | < 0.05 | < 0.05 | 0.08 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.51 | -- | 0.43 | -- | -- | -- | 16.1 | 2.4 | -- | 1 | 0.8 | 0.9 |
| Nitrogen, Organic | mg/l | -- | -- | 0.04 | -- | <0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | 8.56 | -- | 9.15 | -- | -- | -- | 9.61 | 9.1 | -- | 9.25 | 9.40 | 9.66 |
| Phosphate, ortho | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | 0.962 | 0.57 | -- | 0.597 | 0.773 | 0.455 |
| Phosphorus | mg/l | -- | -- | 1.38 | -- | 0.43 | -- | -- | -- | 4.6 | 2.54 | -- | 1.48 | 1.12 | 1.67 |
| Sulphate | mg/l | -- | 500(3) | 7 | -- | <3 | -- | -- | -- | < 1 | 2 | -- | 2 | < 1 | <1 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | -- | 9 | -- | -- | -- | 9.6 | 8.7 | -- | 8.8 | 8.8 | 12.9 |
| Total Dissolved Solids | mg/l | -- | 500 | 540 | -- | 512 | -- | -- | -- | 507 | 496 | -- | 451 | 491 | 452 |
| Metals | | | | | | | | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | 4.28 | -- | <0.03 | -- | -- | -- | 0.04 | 1.31 | -- | 0.02 | 0.72 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.08 | -- | 0.04 | -- | -- | -- | 0.027 | 0.136 | -- | 0.031 | 0.091 | 0.031 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | <0.0001 | 0.0009 | -- | < 0.0001 | 0.0003 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.67 | -- | 0.68 | -- | -- | -- | 0.794 | 0.759 | -- | 0.731 | 0.792 | 0.793 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | -- | <0.005 | -- | -- | -- | < 0.000015 | 0.000063 | -- | 0.000018 | 0.000018 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 3 | -- | 1 | -- | -- | -- | 0.75 | 10.3 | -- | 0.81 | 7.58 | 0.78 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | <0.01 | -- | -- | -- | <0.001 | 0.002 | -- | < 0.001 | 0.002 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | <0.0001 | 0.0024 | -- | < 0.0001 | 0.0012 | <0.0001 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | -- | <0.005 | -- | -- | -- | 0.034 | 0.0024 | -- | 0.0022 | 0.0026 | 0.0002 |
| Iron, dissolved | mg/l | -- | 0.3 | 1.08 | -- | <0.01 | -- | -- | -- | 0.039 | 3.07 | -- | 0.036 | 1.34 | 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.002 | -- | <0.002 | -- | -- | -- | 0.00044 | 0.00601 | -- | 0.00027 | 0.00292 | 0.00028 |
| Magnesium, dissolved | mg/l | -- | -- | 4 | -- | 1 | -- | -- | -- | 0.44 | 2.45 | -- | 0.46 | 1.33 | 0.54 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | -- | <0.01 | -- | -- | -- | 0.002 | 0.191 | -- | 0.003 | 0.173 | 0.002 |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | <0.0002 | -- | -- | -- | < 0.0002 | <0.00002 | -- | < 0.00002 | < 0.00002 | 0.00003 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | -- | <0.01 | -- | -- | -- | 0.004 | 0.0002 | -- | 0.0005 | 0.0005 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | <0.0002 | 0.007 | -- | < 0.01 | < 0.01 | <0.0002 |
| Potassium, dissolved | mg/l | -- | -- | 9 | -- | 3 | -- | -- | -- | 3 | 3.6 | -- | 2.8 | 2.9 | 2.9 |
| Silicon, dissolved | mg/l | -- | -- | 4 | -- | 3 | -- | -- | -- | 3.85 | 6.08 | -- | 2.62 | 3.97 | 2.89 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | < 0.0001 | <0.0001 | -- | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200(4) | 237 | -- | 206 | -- | -- | -- | 208 | 193 | -- | 186 | 204 | 204 |
| Strontium, dissolved | mg/l | -- | -- | 0.071 | -- | 0.054 | -- | -- | -- | 0.043 | 0.142 | -- | 0.041 | 0.089 | 0.049 |
| Sulfur | mg/l | -- | -- | 3 | -- | <0.01 | -- | -- | -- | 0.6 | 0.3 | -- | 0.5 | 0.6 | 1.00 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | -- | <0.2 | -- | -- | -- | < 0.00005 | 0.00008 | -- | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | <0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | < 0.005 | 0.008 | -- | < 0.005 | 0.011 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | -- | <0.01 | -- | -- | -- | 0.0002 | 0.006 | -- | 0.0002 | 0.0037 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | <0.01 | -- | -- | -- | < 0.005 | 0.017 | -- | < 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | <0.001 | -- | -- | -- | < 0.002 | <0.002 | -- | < 0.001 | < 0.001 | <0.001 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS: AO | G32B-98 | G32B-98 | G32B-98 | G32B-98 | G32B-98 | G32B-98 |
|----------------------------------|-------|---------------------------------|------------------|-------------|-----------------|-----------------|-----------------|-------------|-------------|
| | | | | 12-Jun-1998 | 20-Aug-1998 (7) | 02-Jun-2000 (7) | 18-Aug-2000 (7) | 17-Aug-2021 | 10-Nov-2021 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 352 | -- | -- | -- | 386 | 324 |
| Ammonia Nitrogen | mg/l | -- | -- | 0.56 | -- | -- | -- | 1.63 | 0.77 |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 7 | -- | -- | -- | 15 | 12 |
| Chemical Oxygen Demand | mg/l | -- | -- | 7 | -- | -- | -- | 753 | 335 |
| Chloride | mg/l | -- | 250 | 75 | -- | -- | -- | 59.3 | 53.1 |
| Conductivity (Field) | uS/cm | -- | -- | 620 | -- | -- | -- | 880 | 796 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.4 | -- | -- | -- | 5.9 | 5 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 39 | -- | -- | -- | 4 | 4 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1 | -- | <0.1 | -- | -- | -- | 0.26 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.57 | -- | -- | -- | 3 | 9.8 |
| Nitrogen, Organic | mg/l | -- | -- | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | 9.4 | -- | -- | -- | 9.7 | 9.1 |
| Phosphate, ortho | mg/l | -- | -- | -- | -- | -- | -- | 2.37 | 1.25 |
| Phosphorus | mg/l | -- | -- | 11.3 | -- | -- | -- | 33.4 | 13.6 |
| Sulphate | mg/l | -- | 500 (3) | 2 | -- | -- | -- | < 1 | <1 |
| Temperature (Field) | deg c | -- | 15 | 11 | -- | -- | -- | 9.9 | 9.1 |
| Total Dissolved Solids | mg/l | -- | 500 | 520 | -- | -- | -- | 493 | 446 |
| Metals | | | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | 3.53 | -- | -- | -- | 0.01 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.11 | -- | -- | -- | 0.041 | 0.038 |
| Beryllium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- | <0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.68 | -- | -- | -- | 0.745 | 0.7 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.005 | -- | -- | -- | < 0.000015 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 4 | -- | -- | -- | 0.79 | 0.79 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.01 | -- | -- | -- | <0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- | <0.0001 | <0.0001 |
| Copper, dissolved | mg/l | -- | 1 | <0.005 | -- | -- | -- | 0.0036 | 0.0002 |
| Iron, dissolved | mg/l | -- | 0.3 | 2.39 | -- | -- | -- | 0.034 | 0.016 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.005 | -- | -- | -- | 0.00042 | 0.00027 |
| Magnesium, dissolved | mg/l | -- | -- | 7 | -- | -- | -- | 0.57 | 0.55 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | -- | -- | -- | 0.002 | 0.002 |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0002 | -- | -- | -- | < 0.0002 | <0.0002 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.03 | -- | -- | -- | 0.0005 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- | 0.0002 | <0.0002 |
| Potassium, dissolved | mg/l | -- | -- | 14 | -- | -- | -- | 3.2 | 3.1 |
| Silicon, dissolved | mg/l | -- | -- | 4.9 | -- | -- | -- | 3.71 | 3.52 |
| Silver, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 227 | -- | -- | -- | 194 | 210 |
| Strontium, dissolved | mg/l | -- | -- | 0.073 | -- | -- | -- | 0.045 | 0.043 |
| Sulfur | mg/l | -- | -- | <3 | -- | -- | -- | 0.6 | 0.3 |
| Thallium, dissolved | mg/l | -- | -- | <0.2 | -- | -- | -- | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | <0.05 | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.01 | -- | -- | -- | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | <0.01 | -- | -- | -- | 0.0002 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | <0.01 | -- | -- | -- | < 0.005 | <0.005 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.002 | -- | -- | -- | < 0.002 | <0.002 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS AO | G32B-98 | G32B-98 | G32B-98 | G32B-98 |
|----------------------------------|-------|---------------------------------|--------------------|-----------------------------|-------------|------------|-----------|
| | | | | 31-May-2022 ⁽¹²⁾ | 28-Oct-2022 | 04-May-23 | 15-Aug-23 |
| | | | | | | G32B-98 | G32-98B |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 339 | 335 | 347 |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 1.82 | 0.57 | 0.5 |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | < 3 | 12 |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 658 | 453 | 110 |
| Chloride | mg/l | -- | 250 | -- | 43.5 | 53.6 | 49.3 |
| Conductivity (Field) | uS/cm | -- | -- | -- | 739 | 765 | 684 |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 3.4 | 4.6 | 6.1 |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 4 | 4 | 4.97 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | 0.08 | <0.05 |
| Nitrite as N | mg/l | 1 | -- | -- | 0.06 | < 0.05 | 0.06 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 9.3 | < 1 | 2.3 |
| Nitrogen, Organic | mg/l | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | 9.2 | 7.64 | 9.53 |
| Phosphate, ortho | mg/l | -- | -- | -- | 1.5 | 0.706 | 0.587 |
| Phosphorus | mg/l | -- | -- | -- | 12.8 | 3.24 | 4.82 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | 1 | < 1 | < 1 |
| Temperature (Field) | deg.c | -- | 15 | -- | 8.9 | 8.5 | 11.3 |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 431 | 448 | 423 |
| Metals | | | | | | | |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.01 | < 0.01 | <0.01 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.03 | 0.062 | 0.044 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.681 | 0.726 | 0.736 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000010 | < 0.000010 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 0.74 | 0.83 | 0.92 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | < 0.001 | <0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | <0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0004 | 0.0029 | 0.0002 |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 0.032 | 0.014 | 0.011 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00034 | 0.00017 | 0.00027 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 0.47 | 0.58 | 0.65 |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.002 | 0.002 | 0.001 |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0009 | 0.0005 | 0.0004 |
| Nickel, dissolved | mg/l | -- | -- | -- | < 0.01 | < 0.01 | <0.0002 |
| Potassium, dissolved | mg/l | -- | -- | -- | 2.8 | 2.7 | 3.0 |
| Silicon, dissolved | mg/l | -- | -- | -- | 2.6 | 3.08 | 2.89 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 176 | 188 | 191 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.036 | 0.05 | 0.054 |
| Sulfur | mg/l | -- | -- | -- | < 0.1 | 0.7 | 2.75 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0004 | 0.0002 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.001 | < 0.001 | <0.001 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 | 08-Aug-2001 | 04-Apr-2002 | 07-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 77 | 67 | 39 | 52 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.08 | 0.04 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 16 | 20 | 4 | 14 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.1 | 2.8 | 2.4 | 2.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 159 | 142 | 44 | 91 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.010 | 0.02 | 0.02 |
| Phosphorus | mg/l | -- | -- | 0.88 | 0.5 | 0.48 | 0.74 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 324 | 240 | 85 | 167 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.06 | 0.04 | <0.05 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 42 | 37 | 11 | 25 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.11 | 0.12 | 0.01 | 0.3 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 13 | 12 | 4 | 7 |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.66 | 2.61 | 0.58 | 1.56 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12 | 13 | 8 | 9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 300 | 475 | 520 | 610 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | 12.5 | 5 | 17 |
| pH (Field) | - | -- | -- | 6.5 | 7.1 | 6.4 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 14-May-2003 | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 30 | 28 | 34 | 45 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.02 | 0.05 | <0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 4 | 3 | 7.6 | 20.5 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.9 | 1.8 | 2.1 | 2.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 49 | 59 | 113.1 | 204 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.03 | 0.017 | 0.004 |
| Phosphorus | mg/l | -- | -- | 0.48 | 0.5 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 92 | 116 | 88 | 316 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.05 | <0.05 | 0.02 | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 13 | 17 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | <0.01 | 0.05 | <0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 4 | 4 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.44 | 0.326 | 0.451 | 1.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 9 | 10 | 6.4 | 13 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 90 | 120 | 98 | 190 |
| Temperature (Field) | deg c | -- | 15 | 7 | 15 | 8 | 15 |
| pH (Field) | - | -- | -- | 7.7 | 7.4 | 7.73 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 27-May-2005 | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 29 | 61 | 64 | 160 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.04 | <0.02 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 197 | 323 | 272 | 114 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.1 | 1.7 | 2.6 | 7.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 293 | 456 | 477 | 206 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.08 | 0.04 | 0.04 |
| Phosphorus | mg/l | -- | -- | 0.29 | 0.19 | 0.16 | 0.2 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 499 | 825 | 904 | 696 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.05 | 0.01 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 81 | 130 | 120 | 61 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 22 | 32 | 43 | 13 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.36 | 0.82 | 0.36 | 0.38 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 18 | 47 | 63 | 136 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 767 | 1010 | 1050 | 1100 |
| Temperature (Field) | deg c | -- | 15 | 8 | 19.3 | 11 | 14 |
| pH (Field) | - | -- | -- | 7.4 | 6.1 | 6.4 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 28-May-2007 | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 93 | 98 | 53 | 150 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | <0.02 | 0.08 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 29 | 191 | 60 | 75 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 4.7 | 4.9 | 3.1 | 3.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 70 | 335 | 67 | 155 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.06 | < 0.01 | 0.02 |
| Phosphorus | mg/l | -- | -- | 0.29 | 0.21 | 0.24 | 0.18 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 281 | 825 | 252 | 484 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.02 | 0.03 | <0.01 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 18 | 93 | 17 | 44 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.07 | <0.03 | 0.04 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 6 | 25 | 6 | 11 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.19 | 1.2 | <0.01 | 0.75 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 44 | 123 | 35 | 77 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 375 | 1150 | 310 | 600 |
| Temperature (Field) | deg c | -- | 15 | 8.5 | 14.7 | 7.5 | 16 |
| pH (Field) | - | -- | -- | 8.3 | 7.1 | 6.9 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 14-Apr-2009 | 14-Aug-2009 | 31-May-2010 | 11-Aug-2010 |
| | | /03)-Health | AO | G-36-01 | 36-01 | M-8 | C-5 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 89 | 112 | 84 | 98 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | <0.05 | 0.08 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 53 | 67 | 26 | 25 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 2.8 | 3.5 | 5.3 | 4.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 94 | 190 | 190 | 210 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | 0.02 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.29 | 0.093 | 0.11 | 0.076 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 277 | 425 | 350 | 414 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | 0.03 | 0.04 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.05 | 1.10 | 1.34 | 2.21 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 34.4 | 53.4 | 34.0 | 54.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 370 | 576 | 520 | 564 |
| Temperature (Field) | deg c | -- | 15 | 4 | 15.4 | 9.9 | 17.4 |
| pH (Field) | - | -- | -- | 7.4 | 6.14 | 6.70 | 6.28 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 28-Apr-2011 | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 |
| | | | | R-5 | G36-01 | 36-01 | 36-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 66 | 143 | 93 | 130 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | <0.050 | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 19 | 32 | 26 | 37 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.0 | 10.0 | 5.2 | 5.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 55 | 140 | 130 | 160 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.02 | 0.013 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.23 | 0.08 | 0.11 | 0.10 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 156 | 362 | 230 | 296 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | 0.03 | 0.02 | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.07 | 1.71 | 0.96 | 2.15 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 27.9 | 41.2 | 21.2 | 43.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 246 | 435 | 336 | 535 |
| Temperature (Field) | deg c | -- | 15 | 5.2 | 13.9 | 9.6 | 14.4 |
| pH (Field) | - | -- | -- | 7.89 | 6.43 | 6.86 | 6.68 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Apr-2013 | 06-Sep-2013 | 29-Nov-2013 | 12-May-2014 |
| | | /03)-Health | AO | R-7 | 36-01 | 36-01 | 36-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 64 | 110 | -- | 100 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.12 | 0.062 | -- | 0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 6 | 14 | -- | 27 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 3.4 | 5.0 | -- | 7.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 66 | 100 | -- | 140 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.011 | <0.010 | -- | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.092 | -- | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 148 | 218 | -- | 234 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | 0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.02 | <0.02 | <0.00050 | <0.00050 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 0.62 | -- | 0.12 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.4 | 29.9 | -- | 20 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 212 | 334 | 300 | 359 |
| Temperature (Field) | deg c | -- | 15 | 5.5 | 13.4 | 6.8 | 13.1 |
| pH (Field) | - | -- | -- | 7.68 | 6.00 | 6.63 | 6.96 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-----------------------|-------------|--------------|
| | | | | 26-Aug-2014 | 20-May-2015 | 18-Aug-2015 | 16-June-2016 |
| | | | | 36-01 | 36-01 | 36-01 | 36-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 130 | 94 | 110 | 165 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.055 | <0.050 | <0.050 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 15 | 8 | 7 | 27.7 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 5.8 | 5.3 | 4.6 | 17.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 110 | 80 | 130 | 212 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.012 | <0.010 | <0.010 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.12 | <0.20 ⁽¹⁹⁾ | 0.14 | 0.05 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 210 | 148 | 162 | 347 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | <0.02 | <0.02 | 0.064 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.02 | <0.00050 | <0.00050 | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | <0.02 | 0.006 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.65 | <0.01 | 0.02 | 0.525 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 28 | 8.1 | 9.9 | 32.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 366 | 361 | 401 | 518 |
| Temperature (Field) | deg c | -- | 15 | 14.3 | 12.6 | 13.4 | 8.9 |
| pH (Field) | - | -- | -- | 6.93 | 8.01 | 7.00 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 22-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 |
| | | /03)-Health | AO | 36-01 | 36-01 | 36-01 | 36-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 179 | 282 | 320 | 231 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.02 | -- | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 24.3 | 48.2 | 33 | 42.4 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 17.6 | 27.2 | 24.5 | 26.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 235 | 422 | 394 | 443 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.03 | 0.06 | 0.05 | 0.16 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 366 | 475 | 421 | 507 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.056 | 0.106 | 0.125 | 0.069 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | < 0.005 | < 0.005 | 0.0013 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.006 | 0.006 | 0.006 | 0.009 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.843 | 1.13 | 4.01 | 4.68 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 31.2 | 35.1 | 44.5 | 31.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 586 | 897 | 702 | 758 |
| Temperature (Field) | deg c | -- | 15 | 11.5 | 6 | 13.3 | 4 |
| pH (Field) | - | -- | -- | 6.6 | 6.8 | 6.9 | 7.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|---------------|--------------|-------------|
| | | | | 21-Aug-2018 | 24-April-2019 | 25-Sept-2019 | 26-May-2020 |
| | | | | 36-01 | 36-01 | 36-01 | 36-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 225 | 288 | 263 | 178 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.11 | 0.07 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | 65 | 94 |
| Chloride | mg/l | -- | 250 | 37.8 | 37.2 | 27.2 | 17.8 |
| Conductivity | µmho/c | -- | -- | -- | -- | 959 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.7 | 30.2 | 24 | 20 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 254 | 688 | 500 | 380 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | 10.7 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | 0.09 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 2.4 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.037 | 0.04 | 0.004 |
| Phosphorus | mg/l | -- | -- | 0.06 | 0.05 | 0.05 | 0.04 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 176 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 371 | 774 | 579 | 492 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.007 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.057 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.058 | 0.104 | 0.116 | 0.082 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | 0.000095 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 205 | 150 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | < 0.001 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.001 | 0.0024 | 0.0017 | 0.0005 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | 0.009 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.005 | 0.006 | < 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | < 0.00002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 42.6 | 30.5 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.99 | 10.8 | 4.72 | 0.612 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | < 0.00002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | 0.0012 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0066 | < 0.01 | 0.0037 |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 1.7 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 3.57 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 41.1 | 24.5 | 30.8 | 27.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 1.09 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 49.4 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | < 0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | < 0.0005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0007 | 0.0007 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | < 0.005 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | < 0.002 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 523 | 1458 | 936 | 340 |
| Temperature (Field) | deg c | -- | 15 | 13.6 | 4.1 | 12.7 | 8.1 |
| pH (Field) | - | -- | -- | 6.9 | 6.6 | 6.95 | 7.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | | G36-01 |
|----------------------------------|--------|-----------------------|----------|---------------------|----------------------|--------|--------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 4-Nov-2020 36-01 | 4-Nov-2020 Dup #1 | | 26-May-21 36-01 |
| RDP | | | | | | | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 176 | 173 | 1.72% | 123 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.01 | 0.02 | 66.67% | 0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 23.2 | 23.5 | 1.28% | 9.2 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.4 | 14.4 | 0.00% | 10 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 322 | 327 | 1.54% | 182 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.008 | 0.008 | 0.00% | 0.003 |
| Phosphorus | mg/l | -- | -- | 0.73 | 0.8 | 9.15% | 0.04 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 361 | 367 | 1.65% | 222 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.073 | 0.074 | 1.36% | 0.063 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0005 | 0.0005 | 0.00% | 0.0005 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | 0.00% | <0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.57 | 2.56 | 0.39% | 0.076 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 21.7 | 22.1 | 1.83% | 11.7 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 835 | -- | -- | 405.00 |
| Temperature (Field) | deg c | -- | 15 | 8.6 | -- | -- | 8.50 |
| pH (Field) | - | -- | -- | 6.8 | -- | -- | 7.40 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G36-01 | G36-01 | G36-01 | G36-01 | G36-01 |
|----------------------------------|--------|-------------|---------|-----------|-----------|-----------|-----------|-----------|
| | | ODWQS(169 | ODWQS- | 17-Aug-21 | 31-May-22 | 28-Oct-22 | 04-May-23 | 15-Aug-23 |
| | | /03)-Health | AO | 36-01 | 36-01 | 36-01 | G36-01 | G36-01 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 97 | 105 | 117 | 179 | 193 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 14.4 | 10.1 | 6.5 | 7.3 | 7.7 |
| Conductivity | µmho/c | -- | -- | -- | 468 | -- | 629 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.4 | 13.3 | 9.9 | 18.3 | 16.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 1340 | 231 | 166 | 315 | 309 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.019 | 0.005 | 0.009 | < 0.002 | 0.005 |
| Phosphorus | mg/l | -- | -- | 0.63 | 0.05 | -- | 0.25 | 0.04 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 242 | 256 | 195 | 363 | 343 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.046 | 0.056 | 0.051 | 0.082 | 0.079 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | 94.3 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | < 0.005 | 0.006 | <0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | 19.2 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.123 | 0.002 | 0.026 | 0.002 | 0.046 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.8 | 12.4 | 9.8 | 14.5 | 14.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | µS/cm | -- | -- | 430.00 | 540.00 | 350.00 | 608 | 573 |
| Temperature (Field) | deg c | -- | 15 | 11.50 | 7.50 | 7.22 | 6.6 | 14.60 |
| pH (Field) | - | -- | -- | 6.80 | 7.20 | 11.10 | 7.16 | 7.03 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2001 | 08-Aug-2001 | 04-Apr-2002 | 07-Aug-2002 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 29 | 23 | 23 | 18 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | <0.02 | 0.03 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 55 | 68 | 51 | 54 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.6 | 0.8 | 1.1 | 0.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 111 | 111 | 98 | 104 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | < 0.01 | 0.05 |
| Phosphorus | mg/l | -- | -- | 0.77 | 0.27 | 0.28 | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 264 | 244 | 205 | 226 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | <0.01 | <0.05 | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 28 | 28 | 26 | 27 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.02 | 0.02 | 0.03 | 0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 10 | 10 | 8 | 9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.06 | 0.02 | 0.01 | 0.009 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 14 | 16 | 12 | 12 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 250 | 465 | 510 | 550 |
| Temperature (Field) | deg c | -- | 15 | 9.5 | 11 | 5 | 16 |
| pH (Field) | - | -- | -- | 6.2 | 7.2 | 6.4 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 13-May-2003 | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 25 | 21 | 11 | 11 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | <0.02 | 0.03 | <0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 110 | 75 | 73.1 | 72.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.8 | 0.9 | 1.4 | 1.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 123 | 130 | 121.5 | 123.7 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.07 | < 0.003 | 0.002 |
| Phosphorus | mg/l | -- | -- | 0.45 | 0.58 | <0.1 | <0.1 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 233 | 257 | 332 | 254 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.05 | <0.05 | <0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 31 | 34 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | <0.01 | <0.01 | 0.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 11 | 11 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.007 | 0.012 | 0.013 | 0.016 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 15 | 20 | 15.5 | 15.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 490 | 460 | 281 | 510 |
| Temperature (Field) | deg c | -- | 15 | 7 | 13 | 8.3 | 15 |
| pH (Field) | - | -- | -- | 6.7 | 6.8 | 7.02 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 27-May-2005 | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 18 | 15 | 15 | 13 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.02 | 0.04 | <0.02 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 104 | 145 | 197 | 275 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | <0.5 | 0.6 | <0.5 | 1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 177 | 215 | 291 | 408 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.06 | 0.11 | 0.04 | 0.05 |
| Phosphorus | mg/l | -- | -- | 0.24 | 0.15 | 0.3 | 0.17 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 301 | 388 | 529 | 728 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.01 | 0.02 | 0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 46 | 58 | 77 | 109 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.01 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 15 | 17 | 24 | 33 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.02 | 0.02 | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17 | 20 | 19 | 24 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 463 | 165 | 550 | 510 |
| Temperature (Field) | deg c | -- | 15 | 8 | 17.5 | 11 | 14 |
| pH (Field) | - | -- | -- | 6.8 | 6.5 | 6 | 6.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-May-2007 | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 15 | 32 | 13 | 12 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | <0.02 | <0.02 | <0.02 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 183 | 612 | 170 | 250 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1 | 1.2 | 1.1 | 1.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 287 | 836 | 268 | 308 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.07 | 0.09 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.26 | 0.22 | 0.07 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 529 | 42 | 495 | 644 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.01 | <0.01 | <0.01 | <0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 77 | 231 | 71 | 82 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.04 | <0.03 | <0.03 | <0.03 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 23 | 63 | 22 | 25 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.03 | 0.09 | 0.03 | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 22 | 42 | 26 | 32 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 750 | 1575 | 500 | 800 |
| Temperature (Field) | deg c | -- | 15 | 9 | 12.7 | 8.5 | 14 |
| pH (Field) | - | -- | -- | 7.7 | 6.8 | 5.9 | 5.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 15-Apr-2009 | 14-Aug-2009 | 15-Sep-2009 | 31-May-2010 |
| | | /03)-Health | AO | G-37-01 | 37-01 | G-2 | M-9 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 24 | 36 | -- | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | <0.05 | -- | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 80 | 150 | 140 | 220 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 1.3 | 0.8 | -- | 0.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | 230 | -- | 310 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.091 | 0.064 | -- | 0.06 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 315 | 465 | 425 | 630 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | <0.02 | <0.02 | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.03 | -- | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 25.0 | 37.1 | -- | 47.5 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 490 | 651 | 800 | 966 |
| Temperature (Field) | deg c | -- | 15 | 6 | 13.5 | 11.0 | 11.9 |
| pH (Field) | - | -- | -- | 7.1 | 5.46 | 7.3 | 6.26 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 24-Jun-2010 | 11-Aug-2010 | 09-Sep-2010 | 28-Apr-2011 |
| | | /03)-Health | AO | 37-01 | C-6 | 37-01 | R-4 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 15 | -- | 9 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.05 | -- | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 190 | 190 | 210 | 610 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 0.9 | -- | 0.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 240 | -- | 770 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.038 | -- | 0.070 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 520 | 514 | 564 | 1280 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.03 | -- | 0.11 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 63.0 | -- | 88.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 770 | -- | 1889 |
| Temperature (Field) | deg c | -- | 15 | -- | 16.7 | -- | 7.5 |
| pH (Field) | - | -- | -- | -- | 6.32 | -- | 6.12 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-----------------------|--------------------|----------------------|-----------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-May-2011 37-01 | 23-Aug-2011 G37-01 | 07-Sep-2011 37-01 | 04-Jun-2012 37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 10 | -- | 12 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | <0.02 | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.3 ⁽¹⁹⁾ | -- | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 270 | 500 | 90 | 190 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 1.0 | -- | 0.95 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 620 | -- | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.055 | -- | 0.067 |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 722 | 1300 | 518 | 650 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | 0.03 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.09 | -- | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | -- | 121 | 62.2 | 84.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1821 | -- | 815 |
| Temperature (Field) | deg c | -- | 15 | -- | 12.6 | -- | 9.4 |
| pH (Field) | - | -- | -- | -- | 5.13 | -- | 5.46 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 04-Jul-2012 | 29-Aug-2012 | 05-Oct-2012 | 23-Apr-2013 |
| | | /03)-Health | AO | 37-01 | 37-01 | 37-01 | R-8 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 14 | -- | 21 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | -- | 0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 240 | 310 | 300 | 220 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 0.90 | -- | 1.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 300 | -- | 240 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | < 0.01 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.066 | -- | 0.10 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 714 | 918 | 832 | 662 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.05 | -- | 0.04 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 118 | 122 | 100 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1310 | -- | 964 |
| Temperature (Field) | deg c | -- | 15 | -- | 13.5 | -- | 8.4 |
| pH (Field) | - | -- | -- | -- | 5.67 | -- | 6.97 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 28-May-2013 | 06-Sep-2013 | 15-Oct-2013 | 12-May-2014 |
| | | /03)-Health | AO | 37-01 | 37-01 | 37-01 | 37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 23 | -- | 20 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | -- | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 240 | 170 | 190 | 200 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 1.5 | -- | 1.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 140 | -- | 190 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.010 | -- | <0.010 |
| Phosphorus | mg/l | -- | -- | -- | 0.10 | -- | 0.083 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 726 | 574 | -- | 610 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.00050 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.02 | -- | 0.03 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 92.1 | -- | 94 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 7.63 | 834 | 857 |
| Temperature (Field) | deg c | -- | 15 | -- | 12.7 | 12.5 | 13.1 |
| pH (Field) | - | -- | -- | -- | 5.48 | 6.84 | 6.40 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 06-Jun-2014 | 26-Aug-2014 | 23-Sep-2014 | 20-May-2015 |
| | | /03)-Health | AO | MW 37 | 37-01 | G-37 | 37 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 15 | -- | 14 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.058 | -- | 0.12 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 200 | 170 | 160 | 300 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 0.93 | -- | 1.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 120 | -- | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.010 | -- | <0.010 |
| Phosphorus | mg/l | -- | -- | -- | 0.14 | -- | 0.093 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 694 | 482 | 506 | 894 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | <0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.02 | -- | <0.00050 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.02 | -- | 0.05 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 95 | -- | 120 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 783 | -- | 901 |
| Temperature (Field) | deg c | -- | 15 | -- | 12.8 | -- | 12.1 |
| pH (Field) | - | -- | -- | -- | 6.82 | -- | 6.51 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|--------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 17-Jun-2015 | 18-Aug-2015 | 30-Sep-2015 | 16-June-2016 |
| | | | | 37 | 37-01 | G37-01 | 37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 10 | -- | 22 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | <0.050 | -- | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 280 | 300 | 350 | 271 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 0.95 | -- | 0.5 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 260 | -- | 210 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | <0.010 | -- | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.097 | -- | 0.18 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 852 | 980 | 936 | 775 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | <0.02 | -- | 0.01 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.00050 | -- | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | <0.02 | -- | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.05 | -- | 0.043 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 120 | 160 | 160 | 138 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 909 | 1010 | 904 | 1124 |
| Temperature (Field) | deg c | -- | 15 | 12.6 | 12.9 | 11.9 | 9.7 |
| pH (Field) | - | -- | -- | 6.60 | 6.61 | 6.75 | 6.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|--------------|-------------|
| | | | | 22-Aug-2016 | 02-May-2017 | 20-Sept-2017 | 01-May-2018 |
| | | | | G37-01 | 37-01 | 37-01 | 37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 25 | 30 | 25 | 32 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | < 3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | < 5 | 6 | 69 |
| Chloride | mg/l | -- | 250 | 398 | 212 | 176 | 138 |
| Conductivity | µmho/c | -- | -- | -- | -- | 798 | 667 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.3 | 0.4 | 0.8 | 1.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 304 | 188 | 138 | 103 |
| Nitrate as N | mg/l | 10 | -- | -- | 6.86 | 6.83 | 4.94 |
| Nitrite as N | mg/l | 1.0 | -- | -- | 0.1 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 0.24 | 0.2 | 0.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | < 0.01 | 0.01 | 0.03 |
| Phosphorus | mg/l | -- | -- | 0.08 | 0.07 | 0.15 | 0.19 |
| Sulphate | mg/l | -- | 500 (3) | -- | 55 | 40 | 48 |
| Total Dissolved Solids | mg/l | -- | 500 | 1057 | 469 | 458 | 343 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.02 | 0.03 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.103 | 0.083 | 0.057 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.013 | 0.009 | 0.01 | 0.009 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | 0.000101 | 0.000078 | 0.000057 |
| Calcium, dissolved | mg/l | -- | -- | -- | 46.9 | 34.6 | 26.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | 0.003 | 0.057 | 0.004 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0004 | < 0.005 | < 0.005 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | -- | < 0.002 | < 0.002 | 0.0007 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | 0.01 | 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 17.3 | 12.6 | 9.14 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.059 | 0.035 | 0.029 | 0.019 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0006 | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | -- | < 0.01 | 0.04 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | -- | 0.9 | 1.1 | 0.7 |
| Silicon, dissolved | mg/l | -- | -- | -- | 5.82 | 6.25 | 5.3 |
| Silver, dissolved | mg/l | -- | -- | -- | 0.00004 | < 0.00002 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 178 | 119 | 124 | 101 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.59 | 0.429 | 0.322 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 20.3 | 16.2 | 14.1 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0024 | < 0.0001 | < 0.0001 |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.001 | < 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1625 | 1066 | 751 | 588 |
| Temperature (Field) | deg c | -- | 15 | 9.9 | 7.8 | 11.0 | 6.5 |
| pH (Field) | - | -- | -- | 5.8 | 6.1 | 5.9 | 7.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|---------------|--------------|-------------|
| | | | | 21-Aug-2018 | 24-April-2019 | 25-Sept-2019 | 26-May-2020 |
| | | | | 37-01 | 37-01 | 37-01 | 37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 30 | 36 | 46 | 45 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.04 | 0.03 | 0.04 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | -- | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 11 | 78 | -- | 5 |
| Chloride | mg/l | -- | 250 | 335 | 178 | 361 | 200 |
| Conductivity | µmho/c | -- | -- | 1220 | 751 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.6 | 3.8 | 1.1 | 1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 182 | 136 | 250 | 176 |
| Nitrate as N | mg/l | 10 | -- | 4.2 | 2.02 | -- | 3.93 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.3 | 0.3 | -- | 1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.101 | 0.09 | 0.065 |
| Phosphorus | mg/l | -- | -- | 0.07 | 0.14 | 0.07 | 0.15 |
| Sulphate | mg/l | -- | 500 (3) | 41 | 38 | -- | 39 |
| Total Dissolved Solids | mg/l | -- | 500 | 623 | 379 | 687 | 425 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0.02 | -- | 0.36 |
| Barium, dissolved | mg/l | 1 | -- | 0.106 | 0.061 | -- | 0.081 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.008 | 0.008 | 0.008 | 0.014 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000137 | 0.000084 | -- | 0.000062 |
| Calcium, dissolved | mg/l | -- | -- | 45.2 | 33.9 | -- | 42.5 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.001 | 0.001 | -- | 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | 0.0002 | -- | 0.0004 |
| Copper, dissolved | mg/l | -- | 1 | 0.0009 | 0.0016 | -- | 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | < 0.005 | 0.889 |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | 0.00003 | -- | 0.00031 |
| Magnesium, dissolved | mg/l | -- | -- | 16.7 | 12.4 | -- | 17 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.033 | 0.021 | 0.034 | 0.025 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | 0.0043 | -- | 0.0055 |
| Potassium, dissolved | mg/l | -- | -- | 1.1 | 0.6 | -- | 1.3 |
| Silicon, dissolved | mg/l | -- | -- | 4.24 | 4.65 | -- | 5.59 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 166 | 94.3 | 164 | 97.8 |
| Strontium, dissolved | mg/l | -- | -- | 0.545 | 0.419 | -- | 0.43 |
| Sulfur, dissolved | mg/l | -- | -- | 13 | 10.5 | -- | 12.4 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | -- | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | -- | 0.026 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0001 | 0.0001 | -- | 0.0016 |
| Zinc, dissolved | mg/l | -- | 5 | 0.008 | < 0.005 | -- | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.002 | < 0.002 | -- | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 897 | 767 | 1265 | 785 |
| Temperature (Field) | deg c | -- | 15 | 10.0 | 6.5 | 11.1 | 8.8 |
| pH (Field) | - | -- | -- | 7.1 | 6.3 | 7.77 | 7.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G37-01 | | G37-01 | | G37-01 | | G37-01 | |
|----------------------------------|--------|-----------------------|----------|-------------|---------|------------|--------|------------|--------|-----------|-----------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 26-May-2020 | | 4-Nov-2020 | | 4-Nov-2020 | | 26-May-21 | 17-Aug-21 |
| | | | | Dup G45 | RDP | G37-01 | Dup #2 | RDP | G37-01 | G37-01 | |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 44 | 2.25% | 48 | | 50 | 4.08% | 59 | 65 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.03 | 28.57% | 0.02 | | 0.02 | 0.00% | 0.02 | < 0.01 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | 0.00% | < 3 | | < 3 | 0.00% | <3 | < 3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | <5 | 0.00% | < 5 | | < 5 | 0.00% | <5 | 11 |
| Chloride | mg/l | -- | 250 | 198 | 1.01% | 190 | | 186 | 2.13% | 135 | 221 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.9 | 10.53% | 1.2 | | 1.5 | 22.22% | 0.9 | 0.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 168 | 4.65% | 146 | | 145 | 0.69% | 85 | 138 |
| Nitrate as N | mg/l | 10 | -- | 3.95 | 0.51% | 2.17 | | 2.18 | 0.46% | 3.53 | 3.41 |
| Nitrite as N | mg/l | 1.0 | -- | <0.05 | 0.00% | < 0.05 | | < 0.05 | 0.00% | 0.15 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.2 | 133.33% | 0.3 | | 0.3 | 0.00% | 0.2 | 0.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.059 | 9.68% | 0.037 | | 0.041 | 10.26% | 0.031 | 0.015 |
| Phosphorus | mg/l | -- | -- | 0.11 | 30.77% | 0.12 | | 0.18 | 40.00% | 0.12 | 0.09 |
| Sulphate | mg/l | -- | 500 (3) | 39 | 0.00% | 55 | | 55 | 0.00% | 38 | 46 |
| Total Dissolved Solids | mg/l | -- | 500 | 418 | 1.66% | 440 | | 436 | 0.91% | 345 | 478 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.28 | 25.00% | 0.04 | | 0.02 | 66.67% | 0.03 | < 0.01 |
| Barium, dissolved | mg/l | 1 | -- | 0.078 | 3.77% | 0.064 | | 0.064 | 0.00% | 0.041 | 0.064 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | 0.00% | < 0.0001 | | < 0.0001 | 0.00% | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.014 | 0.00% | 0.01 | | 0.009 | 10.53% | 0.011 | 0.013 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000065 | 4.72% | 0.000075 | | 0.000064 | 15.83% | 0.000047 | 0.000066 |
| Calcium, dissolved | mg/l | -- | -- | 40.4 | 5.07% | 36.7 | | 36.7 | 0.00% | 20.3 | 34 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.003 | 40.00% | 0.002 | | 0.002 | 0.00% | 0.001 | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | 28.57% | 0.0002 | | 0.0002 | 0.00% | 0.0002 | 0.0001 |
| Copper, dissolved | mg/l | -- | 1 | 0.0018 | 10.53% | 0.0017 | | 0.0011 | 42.86% | 0.0019 | 0.0009 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.676 | 27.22% | 0.005 | | 0.006 | 18.18% | < 0.005 | < 0.005 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00028 | 10.17% | 0.00004 | | 0.00002 | 66.67% | < 0.00002 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 16.3 | 4.20% | 13.1 | | 12.9 | 1.54% | 8.27 | 12.9 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.022 | 12.77% | 0.016 | | 0.016 | 0.00% | 0.013 | 0.019 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | 0.00% | < 0.00002 | | < 0.00002 | 0.00% | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | 0.00% | 0.0002 | | 0.0001 | 66.67% | < 0.0001 | < 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0054 | 1.83% | 0.0039 | | 0.0035 | 10.81% | 0.0027 | 0.0033 |
| Potassium, dissolved | mg/l | -- | -- | 1.3 | 0.00% | 0.9 | | 0.9 | 0.00% | 0.7 | 0.9 |
| Silicon, dissolved | mg/l | -- | -- | 5.45 | 2.54% | 5.26 | | 5.23 | 0.57% | 4.27 | 4.43 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | 0.00% | < 0.0001 | | < 0.0001 | 0.00% | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 97.1 | 0.72% | 115 | | 114 | 0.87% | 106 | 125 |
| Strontium, dissolved | mg/l | -- | -- | 0.424 | 1.41% | 0.395 | | 0.391 | 1.02% | 0.255 | 0.386 |
| Sulfur, dissolved | mg/l | -- | -- | 12.3 | 0.81% | 18.7 | | 18.5 | 1.08% | 13 | 13.8 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | 0.00% | < 0.00005 | | < 0.00005 | 0.00% | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.018 | 38.36% | < 0.005 | | < 0.005 | 0.00% | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0014 | 13.33% | 0.0003 | | 0.0002 | 40.00% | 0.0002 | 0.0002 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | 0.00% | < 0.005 | | < 0.005 | 0.00% | < 0.005 | < 0.005 |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | 0.00% | < 0.002 | | < 0.002 | 0.00% | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 751 | | -- | -- | 610 | 970 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 10 | | -- | -- | 8.9 | 10 |
| pH (Field) | - | -- | -- | -- | -- | 7.8 | | -- | -- | 7.5 | 6.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G37-01 | G37-01 | G37-01 | G37-01 |
|----------------------------------|--------|---------------------------------|---------------------|-----------|-----------|-----------|-----------|
| | | | | 31-May-22 | 28-Oct-22 | 04-May-23 | 15-Aug-23 |
| | | | | G37-01 | G37-01 | G37-01 | G37-01 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 54 | 72 | 58 | 102 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | < 5 | 14 | 15 | 8 |
| Chloride | mg/l | -- | 250 | 253 | 244 | 290 | 268 |
| Conductivity | µmho/c | -- | -- | 1016 | 1026 | 1172 | 1350 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 0.8 | < 0.2 | < 0.2 | 1.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 156 | 155 | 208 | 196 |
| Nitrate as N | mg/l | 10 | -- | 7.64 | 5.8 | 4.67 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | 4.41 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 0.3 | 0.4 | 0.1 | 0.3 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.005 | 0.015 | < 0.002 | 0.006 |
| Phosphorus | mg/l | -- | -- | 0.16 | 0.12 | 0.09 | 0.10 |
| Sulphate | mg/l | -- | 500 (3) | 41 | 46 | 68 | 106 |
| Total Dissolved Solids | mg/l | -- | 500 | 523 | 535 | 615 | 722 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | < 0.01 | 0.03 | 0.04 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.071 | 0.083 | 0.114 | 0.101 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | < 0.005 | 0.007 | 0.01 | 0.008 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000059 | 0.000094 | 0.00011 | 0.00011 |
| Calcium, dissolved | mg/l | -- | -- | 37.5 | 39.2 | 52.3 | 48.1 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.063 | 0.001 | < 0.001 | 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | 0.0002 | 0.0003 | 0.0004 |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | 0.0025 | 0.0033 | 0.0041 |
| Iron, dissolved | mg/l | -- | 0.3 | < 0.005 | < 0.005 | 0.007 | 0.006 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00003 | 0.00006 | 0.00016 | 0.00003 |
| Magnesium, dissolved | mg/l | -- | -- | 15.1 | 13.8 | 18.9 | 18.5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.02 | 0.032 | 0.045 | 0.039 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | 0.0001 | < 0.0001 | 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0037 | < 0.01 | < 0.01 | 0.0053 |
| Potassium, dissolved | mg/l | -- | -- | 1 | 0.9 | 0.8 | 1.0 |
| Silicon, dissolved | mg/l | -- | -- | 4.55 | 2.55 | 3.92 | 3.09 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 143 | 147 | 150 | 190 |
| Strontium, dissolved | mg/l | -- | -- | 0.46 | 0.449 | 0.664 | 0.615 |
| Sulfur, dissolved | mg/l | -- | -- | 14.6 | 15 | 21.9 | 31.5 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0002 | 0.0002 | 0.0002 | 0.0003 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | 0.006 | < 0.005 | 0.006 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1070 | 970 | 1147 | 1130 |
| Temperature (Field) | deg c | -- | 15 | 8.8 | 10 | 7.1 | 12.2 |
| pH (Field) | - | -- | -- | 6.66 | 6.46 | 6.40 | 6.60 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 27-Aug-2003 | 26-May-2004 | 29-Aug-2004 | 27-May-2005 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 738 | 226 | 502 | 291 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 0.06 | 0.13 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 45 | 25.5 | 19.8 | 24 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 36.7 | 12.1 | 1.9 | 8.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 711 | 336.9 | 472 | 355 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.1 | 0.009 | 0.006 | 0.07 |
| Phosphorus | mg/l | -- | -- | 3.01 | 0.1 | <0.1 | 0.6 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 956 | 334 | 658 | 431 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.11 | 0.06 | 0.1 | 0.06 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 217 | -- | -- | 111 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.44 | 0.19 | 0.21 | 0.07 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 41 | -- | -- | 19 |
| Manganese, dissolved | mg/l | -- | 0.05 | 10.4 | 2.5 | 7.76 | 1.38 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 63 | 27.5 | 47.3 | 29 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 140 | 411 | 180 | 663 |
| Temperature (Field) | deg c | -- | 15 | 12 | 8.7 | 14 | 9 |
| pH (Field) | - | -- | -- | 7.1 | 6.99 | 7 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 25-Aug-2005 | 31-May-2006 | 07-Sep-2006 | 28-May-2007 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 551 | 490 | 347 | 569 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.12 | 0.05 | 0.12 | 0.11 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 35 | 31 | 12 | 22 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21.8 | 14.2 | 12.4 | 20 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 517 | 448 | 282 | 518 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.18 | 0.04 | 0.07 | 0.1 |
| Phosphorus | mg/l | -- | -- | 0.41 | 0.33 | 0.17 | 0.73 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 728 | 644 | 458 | 702 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.14 | 0.04 | 0.05 | 0.11 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 161 | 143 | 90 | 168 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.4 | 0.12 | <0.03 | 0.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 28 | 22 | 14 | 24 |
| Manganese, dissolved | mg/l | -- | 0.05 | 7.52 | 4.98 | 4.72 | 9.76 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 55 | 40 | 34 | 33 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 600 | 800 | 660 | 850 |
| Temperature (Field) | deg c | -- | 15 | 19.5 | 13 | 16 | 9.9 |
| pH (Field) | - | -- | -- | 6.5 | 6.7 | 7 | 7.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|------------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 28-Aug-2007 | 02-May-2008 | 07-Aug-2008 | 14-Apr-2009 G-38-08 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 570 | 345 | 421 | 228 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | 0.03 | 0.05 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 31 | 8 | 17 | 150 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 23.5 | 7.9 | 15.6 | 6.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 549 | 348 | 326 | 390 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.17 | 0.01 | 0.09 | 0.02 |
| Phosphorus | mg/l | -- | -- | 0.35 | 0.6 | 0.3 | 0.55 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 748 | 441 | 536 | 600 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.09 | 0.05 | 0.1 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 182 | 118 | 106 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.61 | 0.36 | 1.67 | 0.36 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 23 | 13 | 15 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 12.6 | 1.41 | 6.61 | 0.90 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 34 | 14 | 32 | 29.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1025 | 445 | 825 | 800 |
| Temperature (Field) | deg c | -- | 15 | 15 | 7 | 17 | 4 |
| pH (Field) | - | -- | -- | 7.2 | 6.8 | 6.9 | 7.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 13-Aug-2009 | 31-May-2010 | 11-Aug-2010 | 29-Apr-2011 |
| | | | | 38-03 | M-10 | C-4 | R-13 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 250 | 304 | 284 | 175 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | 0.09 | 0.08 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 16 | 14 | 7 | 27 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.4 | 11.9 | 9.3 | 5.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 230 | 290 | 320 | 220 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.02 | 0.01 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.29 | 0.28 | 0.086 | 0.5 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 362 | 380 | 390 | 274 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.03 | 0.04 | 0.05 | 0.02 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | <0.02 | 0.28 | 0.03 | <0.02 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.79 | 3.69 | 3.64 | <0.01 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 18.4 | 21.7 | 16.2 | 11.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 578 | 551 | 577 | 467 |
| Temperature (Field) | deg c | -- | 15 | 14.7 | 10.1 | 16.2 | 5.9 |
| pH (Field) | - | -- | -- | 6.75 | 6.85 | 6.25 | 8.05 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 23-Aug-2011 | 04-Jun-2012 | 29-Aug-2012 | 23-Apr-2013 |
| | | | | G38-03 | 38-03 | 38-03 | R-5 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 424 | 310 | 460 | 290 |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | <0.050 | 0.16 | 0.10 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 43 | 43 | 85 | 45 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10.2 | 8.1 | 15 | 9.1 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 500 | 370 | 550 | 380 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.012 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.27 | 0.34 | 0.29 | 0.17 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 654 | 478 | 780 | 462 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.07 | 0.04 | 0.06 | 0.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | <0.02 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.05 | <0.02 | 5.98 | 2.10 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 4.64 | 0.85 | 8.87 | 1.38 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.2 | 18.7 | 25.2 | 18.6 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 838 | 705 | 1161 | 949 |
| Temperature (Field) | deg c | -- | 15 | 15.8 | 10.1 | 13.5 | 4.9 |
| pH (Field) | - | -- | -- | 6.61 | 6.87 | 6.63 | 6.96 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 06-Sep-2013 | 29-Nov-2013 | 12-May-2014 | 26-Aug-2014 |
| | | | | 38-03 | 38-03 | 38-03 | 38-03 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 350 | -- | 310 | 370 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | -- | 0.090 | 0.13 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 22 | -- | 29 | 25 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 13 | -- | 7.0 | 13 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 340 | -- | 220 | 350 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.040 | -- | <0.010 | 0.065 |
| Phosphorus | mg/l | -- | -- | 0.19 | -- | 0.30 | 0.60 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 464 | -- | 376 | 428 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | -- | 0.03 | 0.05 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | <0.02 | 0.0030 | <0.00050 | <0.02 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.03 | -- | 0.38 | 1.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.59 | -- | 0.31 | 3.0 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 28.6 | -- | 20 | 27 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 700 | 856 | 603 | 795 |
| Temperature (Field) | deg c | -- | 15 | 14.0 | 3.7 | 12.1 | 14.2 |
| pH (Field) | - | -- | -- | 6.72 | 7.03 | 6.96 | 7.59 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|--------------|-------------|
| | | | | 20-May-2015 | 18-Aug-2015 | 16-June-2016 | 22-Aug-2016 |
| | | | | 38-03 | 38-03 | 38-03 | 38-03 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 300 | 280 | 383 | 476 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.080 | <0.050 | 0.18 | 0.15 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 29 | 28 | 23.9 | 30.6 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.5 | 10 | 9.3 | 13.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 380 | 380 | 436 | 576 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | 0.033 | < 0.01 | 0.01 |
| Phosphorus | mg/l | -- | -- | 0.54 | 0.37 | 1.55 | 0.81 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 544 | 494 | 564 | 714 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.04 | 0.05 | 0.057 | 0.11 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0044 | 0.0025 | 0.0057 | 0.0074 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 9.6 | 8.6 | 35.7 | 48.4 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.8 | 3.1 | 5.7 | 7.23 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 27 | 23 | 30 | 35.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 608 | 701 | 876 | 1132 |
| Temperature (Field) | deg c | -- | 15 | 11.9 | 12.8 | 9.8 | 12.3 |
| pH (Field) | - | -- | -- | 7.04 | 7.01 | 6.8 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | | | 38-03 | 38-03 | 38-03 | 38-03 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 233 | 453 | 310 | 355 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.19 | -- | 0.03 | 0.27 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 16.9 | 20.1 | 18.2 | 17.9 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.6 | 17.4 | 9.3 | 11.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 304 | 491 | 407 | 387 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.01 | < 0.01 | < 0.01 |
| Phosphorus | mg/l | -- | -- | 0.56 | 0.79 | 0.6 | 0.66 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 362 | 509 | 507 | 470 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.052 | 0.148 | 0.091 | 0.112 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.006 | 0.006 | 0.0051 | 0.0055 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 29.4 | 46.5 | 45.1 | 36.3 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 3.63 | 5.9 | 4.95 | 3.99 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 21.6 | 35.9 | 25.1 | 24.8 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | < 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 626 | 790 | 685 | 613 |
| Temperature (Field) | deg c | -- | 15 | 6.3 | 13.2 | 5 | 13.1 |
| pH (Field) | - | -- | -- | 6.6 | 6.7 | 6.6 | 6.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G38-03 | G38-03 | G38-03 | G38-03 | G38-03 |
|----------------------------------|--------|-------------|---------|---------------|--------------|-------------|------------|-------------|
| | | ODWQS(169 | ODWQS- | 24-April-2019 | 25-Sept-2019 | 26-May-2020 | 4-Nov-2020 | 26-May-2021 |
| | | /03)-Health | AO | 38-03 | 38-03 | 38-03 | 38-03 | 38-03 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 150 | 503 | 208 | 462 | 303 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.18 | 0.5 | 0.1 | 0.17 | 0.09 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | < 3 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 59 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 7.6 | 29.2 | 7.6 | 9.9 | 14.7 |
| Conductivity | µmho/c | -- | -- | -- | 1058 | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 8.9 | 21.2 | 10.7 | 16.5 | 9.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 182 | 577 | 284 | 569 | 292 |
| Nitrate as N | mg/l | 10 | -- | -- | < 0.05 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 1.3 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.331 | 0.659 | 0.018 | 0.008 | 0.004 |
| Phosphorus | mg/l | -- | -- | 0.27 | 0.71 | 0.63 | 0.84 | 0.34 |
| Sulphate | mg/l | -- | 500 (3) | -- | 5 | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 232 | 595 | 312 | 532 | 373 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.1 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.019 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.05 | 0.142 | 0.09 | 0.159 | 0.079 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.00015 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 60.2 | 193 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | 0.002 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0024 | 0.0082 | 0.0023 | 0.0052 | 0.0022 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0003 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 13.8 | 54.2 | 23.5 | 45.5 | 13.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | < 0.00002 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 7.76 | 22.9 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 1.98 | 5.36 | 2.4 | 6.7 | 2.48 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0003 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0007 | < 0.01 | 0.0014 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 3.9 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 7.01 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 12.9 | 33.2 | 17.5 | 25.3 | 18.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.763 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | 0.006 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0024 | 0.0056 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | < 0.005 | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 480 | 515 | 508 | 978 | 837 |
| Temperature (Field) | deg c | -- | 15 | 4.4 | 12.9 | 7.6 | 9.7 | 7.8 |
| pH (Field) | - | -- | -- | 7.2 | 6.9 | 7.3 | 6.6 | 6.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G38-03 | | G38-03 | G38-03 | |
|----------------------------------|--------|-------------|---------|-------------|--------|-------------|-------------|---------|
| | | ODWQS(169 | ODWQS- | 26-May-2021 | | 17-Aug-2021 | 17-Aug-2021 | |
| | | /03)-Health | AO | Dup #1 | | 38-03 | Dup #1 | |
| | | | | | RPD | | | RPD |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 359 | 16.92% | 460 | 505 | 9.33% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.08 | 11.76% | 0.26 | 0.28 | 7.41% |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 14 | 4.88% | 18.5 | 20.6 | 10.74% |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.1 | 2.17% | 16 | 16.7 | 4.28% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 291 | 0.34% | 567 | 561 | 1.06% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.002 | NC | 0.009 | 0.002 | 127.27% |
| Phosphorus | mg/l | -- | -- | 0.37 | 8.45% | 0.66 | 0.63 | 4.65% |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 410 | 9.45% | 626 | 661 | 5.44% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.078 | 1.27% | 0.156 | 0.165 | 5.61% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0022 | 0.00% | 0.0053 | 0.0053 | 0.00% |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 13.1 | 3.75% | 40.7 | 50.6 | 21.69% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.47 | 0.40% | 5.24 | 5.13 | 2.12% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 18 | 2.20% | 23.6 | 24 | 1.68% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 1110 | 1110 | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | 12.6 | 12.6 | -- |
| pH (Field) | - | -- | -- | -- | -- | 6.73 | 6.73 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G38-03 | | G38-03 | | G38-03 | | G38-03 | |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-----------|-------------|-----------|-----------|-----------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 31-May-2022 | 31-May-2022 | 28-Oct-2022 | 28-Oct-22 | 28-Oct-2022 | 28-Oct-22 | 04-May-23 | 15-Aug-23 |
| | | | | 38-03 | Dup #1 | 38-03 | Dup #1 | 38-03 | Dup #1 | G38-03 | G38-03 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 221 | 220 | 0.45% | 640 | 650 | 1.55% | 264 | 370 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.2 | 0.34 | 51.85% | 0.28 | 0.26 | 7.41% | 0.18 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 15.7 | 15.7 | 0.00% | 15.3 | 16.8 | 9.35% | 6.6 | 6.7 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 10 | 10.4 | 3.92% | 10.6 | 8.4 | 23.16% | 9.2 | 9.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 263 | 269 | 2.26% | 627 | 625 | 0.32% | 323 | 327 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.005 | 120.00% | 0.002 | 0.002 | 0.00% | < 0.002 | <0.002 |
| Phosphorus | mg/l | -- | -- | 0.62 | 0.58 | 6.67% | -- | -- | -- | 0.16 | 0.97 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 295 | 297 | 0.68% | 660 | 673 | 1.95% | 325 | 370 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.078 | 0.077 | 1.29% | 0.234 | 0.225 | 3.92% | 0.057 | 0.061 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | 109 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 22.6 | 23.4 | 3.48% | 49.2 | 49.2 | 0.00% | 19.7 | 20.6 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | 12.3 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 2.08 | 2.14 | 2.84% | 4.71 | 4.7 | 0.21% | 2.18 | 1.89 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 17.6 | 18 | 2.25% | 23.9 | 23.8 | 0.42% | 11.2 | 13.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 590 | -- | -- | 1080 | -- | -- | 496 | 683 |
| Temperature (Field) | deg c | -- | 15 | 9.1 | -- | -- | 11.7 | -- | -- | 6.9 | 15.1 |
| pH (Field) | - | -- | -- | 7.2 | -- | -- | 6.63 | -- | -- | 7.14 | 6.61 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 29-May-2007 | 28-Aug-2007 | 30-Apr-2008 | 06-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 334 | 297 | 258 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.9 | 0.86 | 2 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 4 | 8 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 125 | 164 | -- |
| Chloride | mg/l | -- | 250 | 93.4 | 82.2 | 104 | -- |
| Conductivity | µmho/c | -- | -- | -- | 840 | 827 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21 | 21.7 | 15.7 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 272 | 279 | 249 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | 0.09 | < 0.05 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | < 0.05 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 3.5 | 4.4 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | 0.183 | 0.224 | -- |
| Phosphorus | mg/l | -- | -- | 0.73 | 0.46 | 0.33 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | 24 | 3 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 493 | 456 | 437 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.04 | 0.03 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.041 | 0.055 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.973 | 0.737 | 0.92 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000015 | < 0.000015 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 58.6 | 55.7 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | 0.001 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0003 | 0.0002 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0024 | 0.0008 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 4.13 | 0.761 | 0.788 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00023 | < 0.00002 | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 32.3 | 26.6 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.41 | 0.315 | 0.334 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | < 0.00002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | 0.0002 | 0.0001 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0035 | < 0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 9.6 | 15.3 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 1.36 | 1.96 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | < 0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 77.4 | 75 | 74 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.413 | 0.436 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 7.6 | 2.1 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | < 0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | < 0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0006 | 0.0013 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | 0.005 | < 0.005 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | < 0.002 | < 0.002 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 678 | 916 | 751 | -- |
| Temperature (Field) | deg c | -- | 15 | 20.7 | 5.6 | 17.5 | -- |
| pH (Field) | - | -- | -- | 6.9 | 8.0 | 7.31 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 14-Apr-2009 | 17-Aug-2009 | 15-Sep-2009 | 27-May-2010 |
| | | /03)-Health | AO | G-39-07 | 39-07 | G-1 | T-4 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | 339 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | 0.29 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | 102 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | 12.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | 320 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | 0.016 |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | 0.60 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | 538 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | 0.992 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | 1.01 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | 0.346 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | 104 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenolics | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | 1030 |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | 10.4 |
| pH (Field) | - | -- | -- | -- | -- | -- | 7.80 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 24-Jun-2010 | 12-Aug-2010 | 09-Sep-2010 | 29-Apr-2011 |
| | | | | 39-07 | C-15 | 39-07 | R-8 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 289 | 334 | 297 | 258 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.6 | 1.9 | 0.86 | 2 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 5 | -- | 4 | 8 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 246 | -- | 125 | 164 |
| Chloride | mg/l | -- | 250 | 109 | 93.4 | 82.2 | 104 |
| Conductivity | µmho/c | -- | -- | 910 | -- | 840 | 827 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 7.7 | 21 | 21.7 | 15.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 252 | 272 | 279 | 249 |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | -- | 0.09 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | -- | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.8 | -- | 3.5 | 4.4 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | < 0.01 | 0.183 | 0.224 |
| Phosphorus | mg/l | -- | -- | 0.71 | 0.73 | 0.46 | 0.33 |
| Sulphate | mg/l | -- | 500 (3) | 23 | -- | 24 | 3 |
| Total Dissolved Solids | mg/l | -- | 500 | 500 | 493 | 456 | 437 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | -- | 0.04 | 0.03 |
| Barium, dissolved | mg/l | 1 | -- | 0.066 | -- | 0.041 | 0.055 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.749 | 0.973 | 0.737 | 0.92 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000010 | -- | < 0.000015 | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 55.3 | -- | 58.6 | 55.7 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | -- | < 0.001 | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0001 | -- | 0.0003 | 0.0002 |
| Copper, dissolved | mg/l | -- | 1 | 0.0009 | -- | 0.0024 | 0.0008 |
| Iron, dissolved | mg/l | -- | 0.3 | 1.2 | 4.13 | 0.761 | 0.788 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00008 | -- | 0.00023 | < 0.00002 |
| Magnesium, dissolved | mg/l | -- | -- | 27.6 | -- | 32.3 | 26.6 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.412 | 0.41 | 0.315 | 0.334 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | -- | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | < 0.0001 | -- | 0.0002 | 0.0001 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | -- | 0.0035 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 15.1 | -- | 9.6 | 15.3 |
| Silicon, dissolved | mg/l | -- | -- | 1.45 | -- | 1.36 | 1.96 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 93.2 | 77.4 | 75 | 74 |
| Strontium, dissolved | mg/l | -- | -- | 0.39 | -- | 0.413 | 0.436 |
| Sulfur, dissolved | mg/l | -- | -- | 10.8 | -- | 7.6 | 2.1 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | -- | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | -- | < 0.005 | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0011 | -- | 0.0006 | 0.0013 |
| Zinc, dissolved | mg/l | -- | 5 | 0.016 | -- | 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.001 | -- | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 810 | 678 | 916 | 751 |
| Temperature (Field) | deg c | -- | 15 | 10.3 | 20.7 | 5.6 | 17.5 |
| pH (Field) | - | -- | -- | 7.15 | 6.9 | 8.0 | 7.31 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-----------------------|----------|----------------------|------------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 27-May-2011 39-07 | 24-Aug-2011 G 39-07 | 05-Jun-2012 39-07 | 29-Aug-2012 39-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | -- | -- | -- | -- |
| pH (Field) | - | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|------------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 23-Apr-2013 | 06-Sep-2013 | 12-May-2014 (12) | 27-Aug-2014 |
| | | | | R-15 | G39-07 | G39-07 | 39-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 339 | 289 | 334 | 297 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.29 | 0.6 | 1.9 | 0.86 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 5 | -- | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 246 | -- | 125 |
| Chloride | mg/l | -- | 250 | 102 | 109 | 93.4 | 82.2 |
| Conductivity | µmho/c | -- | -- | -- | 910 | -- | 840 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 12.0 | 7.7 | 21 | 21.7 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 320 | 252 | 272 | 279 |
| Nitrate as N | mg/l | 10 | -- | -- | < 0.05 | -- | 0.09 |
| Nitrite as N | mg/l | 1.0 | -- | -- | < 0.05 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 3.8 | -- | 3.5 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.016 | 0.03 | < 0.01 | 0.183 |
| Phosphorus | mg/l | -- | -- | 0.60 | 0.71 | 0.73 | 0.46 |
| Sulphate | mg/l | -- | 500 (3) | -- | 23 | -- | 24 |
| Total Dissolved Solids | mg/l | -- | 500 | 538 | 500 | 493 | 456 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.04 | -- | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.066 | -- | 0.041 |
| Beryllium, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.992 | 0.749 | 0.973 | 0.737 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | < 0.000010 | -- | < 0.000015 |
| Calcium, dissolved | mg/l | -- | -- | -- | 55.3 | -- | 58.6 |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | < 0.001 | -- | < 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.0001 | -- | 0.0003 |
| Copper, dissolved | mg/l | -- | 1 | -- | 0.0009 | -- | 0.0024 |
| Iron, dissolved | mg/l | -- | 0.3 | 1.01 | 1.2 | 4.13 | 0.761 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.00008 | -- | 0.00023 |
| Magnesium, dissolved | mg/l | -- | -- | -- | 27.6 | -- | 32.3 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.346 | 0.412 | 0.41 | 0.315 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | < 0.00002 | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | -- | < 0.01 | -- | 0.0035 |
| Potassium, dissolved | mg/l | -- | -- | -- | 15.1 | -- | 9.6 |
| Silicon, dissolved | mg/l | -- | -- | -- | 1.45 | -- | 1.36 |
| Silver, dissolved | mg/l | -- | -- | -- | < 0.0001 | -- | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 104 | 93.2 | 77.4 | 75 |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.39 | -- | 0.413 |
| Sulfur, dissolved | mg/l | -- | -- | -- | 10.8 | -- | 7.6 |
| Thallium, dissolved | mg/l | -- | -- | -- | < 0.00005 | -- | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | < 0.005 | -- | < 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0011 | -- | 0.0006 |
| Zinc, dissolved | mg/l | -- | 5 | -- | 0.016 | -- | 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | 0.001 | -- | < 0.002 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1030 | 810 | 678 | 916 |
| Temperature (Field) | deg c | -- | 15 | 10.4 | 10.3 | 20.7 | 5.6 |
| pH (Field) | - | -- | -- | 7.80 | 7.15 | 6.9 | 8.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | G39-07 | G39-07 | G39-07 |
|----------------------------------|--------|-----------------------|----------|-------------|-------------|--------------|-------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 20-May-2015 | 19-Aug-2015 | 17-June-2016 | 22-Aug-2016 |
| | | | | 39 | 39-07 | 39-07 | 39-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 258 | -- | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 2 | -- | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 8 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 164 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 104 | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | 827 | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.7 | -- | -- | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 249 | -- | -- | -- |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 4.4 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.224 | -- | -- | -- |
| Phosphorus | mg/l | -- | -- | 0.33 | -- | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | 3 | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 437 | -- | -- | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.03 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.055 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.92 | -- | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 55.7 | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.001 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0002 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.0008 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.788 | -- | -- | -- |
| Lead, dissolved | mg/l | 0.01 | -- | < 0.00002 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 26.6 | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.334 | -- | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0001 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 15.3 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 1.96 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 74 | -- | -- | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.436 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 2.1 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0013 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 751 | -- | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 17.5 | -- | -- | -- |
| pH (Field) | - | -- | -- | 7.31 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G39-07 | | G39-07 | |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 |
| | | /03)-Health | AO | 39-07 | 39-07 | 39-07 | 39-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 339 | 289 | 334 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 0.29 | 0.6 | 1.9 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | 5 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | 246 | -- |
| Chloride | mg/l | -- | 250 | -- | 102 | 109 | 93.4 |
| Conductivity | µmho/c | -- | -- | -- | -- | 910 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 12.0 | 7.7 | 21 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 320 | 252 | 272 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | < 0.05 | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | < 0.05 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | 3.8 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.016 | 0.03 | < 0.01 |
| Phosphorus | mg/l | -- | -- | -- | 0.60 | 0.71 | 0.73 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | 23 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 538 | 500 | 493 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | 0.04 | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | 0.066 | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.992 | 0.749 | 0.973 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | < 0.000010 | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 55.3 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | < 0.001 | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | 0.0001 | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | 0.0009 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 1.01 | 1.2 | 4.13 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | 0.00008 | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 27.6 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.346 | 0.412 | 0.41 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | < 0.00002 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | < 0.01 | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | 15.1 | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | 1.45 | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | < 0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 104 | 93.2 | 77.4 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | 0.39 | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | 10.8 | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | < 0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | < 0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | 0.0011 | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | 0.016 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | 0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 1030 | 810 | 678 |
| Temperature (Field) | deg c | -- | 15 | -- | 10.4 | 10.3 | 20.7 |
| pH (Field) | - | -- | -- | -- | 7.80 | 7.15 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | G39-07 | |
|----------------------------------|--------|---------------------------------|---------------------|---------------|--------------|-----------------|----------------|-----------------|-----------------|----------------|-------------|-----------|-----------|-----|
| | | | | 25-April-2019 | 25-Sept-2019 | 27-May-2020 (6) | 4-Nov-2020 (6) | 26-May-2021 (6) | 18-Aug-2021 (6) | 31-May-2022(6) | 28-Oct-2022 | 05-May-23 | 14-Aug-23 | |
| | | | | 39-07 | 39-07 | 39-07 | 39-07 | 39-07 | 39-07 | 39-07 | 39-08 | G39-07 | G39-07 | |
| General Chemistry | | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 297 | 258 | -- | -- | -- | -- | -- | 339 | 289 | 300 | 277 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.86 | 2 | -- | -- | -- | -- | 0.29 | 0.6 | < 0.01 | 1.48 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | 8 | -- | -- | -- | -- | -- | 5 | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 125 | 164 | -- | -- | -- | -- | -- | 246 | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 82.2 | 104 | -- | -- | -- | -- | 102 | 109 | 89.5 | 96.3 | -- |
| Conductivity | umho/c | -- | -- | 840 | 827 | -- | -- | -- | -- | -- | 910 | 874 | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21.7 | 15.7 | -- | -- | -- | -- | 12.0 | 7.7 | 9.8 | 12.7 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 279 | 249 | -- | -- | -- | -- | 320 | 252 | 253 | 201 | -- |
| Nitrate as N | mg/l | 10 | -- | 0.09 | < 0.05 | -- | -- | -- | -- | -- | < 0.05 | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | -- | -- | -- | -- | -- | < 0.05 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.5 | 4.4 | -- | -- | -- | -- | -- | 3.8 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.183 | 0.224 | -- | -- | -- | -- | 0.016 | 0.03 | 0.002 | 0.010 | -- |
| Phosphorus | mg/l | -- | -- | 0.46 | 0.33 | -- | -- | -- | -- | 0.60 | 0.71 | 1.26 | 1.14 | -- |
| Sulphate | mg/l | -- | 500 (3) | 24 | 3 | -- | -- | -- | -- | -- | 23 | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 456 | 437 | -- | -- | -- | -- | 538 | 500 | 485 | 441 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.04 | 0.03 | -- | -- | -- | -- | -- | 0.04 | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.041 | 0.055 | -- | -- | -- | -- | -- | 0.066 | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | -- | -- | -- | -- | < 0.0001 | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.737 | 0.92 | -- | -- | -- | -- | 0.992 | 0.749 | 0.838 | 0.896 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000015 | -- | -- | -- | -- | -- | < 0.000010 | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 58.6 | 55.7 | -- | -- | -- | -- | -- | 55.3 | 50.9 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.001 | 0.001 | -- | -- | -- | -- | -- | < 0.001 | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0003 | 0.0002 | -- | -- | -- | -- | -- | 0.0001 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.0024 | 0.0008 | -- | -- | -- | -- | -- | 0.0009 | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.761 | 0.788 | -- | -- | -- | -- | 1.01 | 1.2 | 0.689 | 1.92 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00023 | < 0.00002 | -- | -- | -- | -- | -- | 0.00008 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 32.3 | 26.6 | -- | -- | -- | -- | -- | 27.6 | 30.5 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.315 | 0.334 | -- | -- | -- | -- | 0.346 | 0.412 | 0.275 | 0.218 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | -- | -- | -- | -- | -- | < 0.00002 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0001 | -- | -- | -- | -- | -- | < 0.0001 | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0035 | < 0.01 | -- | -- | -- | -- | -- | < 0.01 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 9.6 | 15.3 | -- | -- | -- | -- | -- | 15.1 | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 1.36 | 1.96 | -- | -- | -- | -- | -- | 1.45 | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | -- | -- | -- | -- | -- | < 0.0001 | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 75 | 74 | -- | -- | -- | -- | 104 | 93.2 | 90.4 | 91.6 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.413 | 0.436 | -- | -- | -- | -- | -- | 0.39 | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 7.6 | 2.1 | -- | -- | -- | -- | -- | 10.8 | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | -- | -- | -- | -- | -- | < 0.00005 | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | -- | -- | -- | -- | -- | < 0.005 | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0006 | 0.0013 | -- | -- | -- | -- | -- | 0.0011 | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.005 | < 0.005 | -- | -- | -- | -- | -- | 0.016 | -- | -- | -- |
| Phenols | | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 | < 0.002 | -- | -- | -- | -- | -- | 0.001 | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 916 | 751 | -- | -- | -- | -- | 1030 | 810 | 817 | 891 | -- |
| Temperature (Field) | deg c | -- | 15 | 5.6 | 17.5 | -- | -- | -- | -- | 10.4 | 10.3 | 8.6 | 18.4 | -- |
| pH (Field) | - | -- | -- | 8.0 | 7.31 | -- | -- | -- | -- | 7.80 | 7.15 | 7.59 | 7.24 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 29-May-2007 | 28-Aug-2007 | 30-Apr-2008 | 06-Aug-2008 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 148 | 209 | 131 | 197 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.09 | 0.11 | 0.12 | 0.06 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2 | 2 | <1 | 1 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 28 | 33 | 32 | 35 |
| Chloride | mg/l | -- | 250 | 53 | 70 | 51 | 72 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.7 | 18.1 | 12.6 | 16.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 160 | 204 | 174 | 195 |
| Nitrate as N | mg/l | 10 | -- | <0.1 | 0.19 | <0.1 | <0.1 |
| Nitrite as N | mg/l | 1.0 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.15 | 1.36 | 0.77 | 0.93 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | 0.03 | 0.02 | 0.01 |
| Phosphorus | mg/l | -- | -- | 1.08 | 0.85 | 0.15 | 0.1 |
| Sulphate | mg/l | -- | 500 (3) | 9 | 4 | 27 | 10 |
| Total Dissolved Solids | mg/l | -- | 500 | 298 | 416 | 301 | 406 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.15 | 0.05 | 0.04 | 0.04 |
| Barium, dissolved | mg/l | 1 | -- | 0.02 | 0.04 | 0.02 | 0.04 |
| Beryllium, dissolved | mg/l | -- | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Boron, dissolved | mg/l | 5 | -- | 0.27 | 0.51 | 0.34 | 0.55 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 36 | 47 | 40 | 45 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.004 | 0.004 | 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.005 | 0.0025 | 0.0013 | 0.0016 |
| Copper, dissolved | mg/l | -- | 1 | 0.004 | <0.001 | 0.002 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.19 | 2.43 | 0.58 | 0.83 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.001 | <0.001 | <0.001 | <0.001 |
| Magnesium, dissolved | mg/l | -- | -- | 17 | 21 | 18 | 20 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.18 | 0.25 | 0.14 | 0.16 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Molybdenum, dissolved | mg/l | -- | -- | <0.005 | <0.005 | <0.005 | <0.005 |
| Nickel, dissolved | mg/l | -- | -- | 0.01 | 0.008 | <0.005 | 0.007 |
| Potassium, dissolved | mg/l | -- | -- | 3 | 4 | 2 | 4 |
| Silicon, dissolved | mg/l | -- | -- | 4.2 | 5.5 | 4.1 | 4.5 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 32 | 42 | 34 | 48 |
| Strontium, dissolved | mg/l | -- | -- | 0.195 | 0.287 | 0.219 | 0.22 |
| Sulfur, dissolved | mg/l | -- | -- | 3 | 1.3 | 9 | 3 |
| Thallium, dissolved | mg/l | -- | -- | 0.0004 | <0.0001 | <0.0001 | <0.0001 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.01 | <0.01 | <0.01 | <0.01 |
| Vanadium, dissolved | mg/l | -- | -- | 0.003 | 0.011 | 0.005 | 0.007 |
| Zinc, dissolved | mg/l | -- | 5 | 0.03 | <0.01 | <0.01 | <0.01 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.001 | 0.002 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 260 | 300 | 360 | 490 |
| Temperature (Field) | deg c | -- | 15 | 10.1 | 12.7 | 3 | 18 |
| pH (Field) | - | -- | -- | 8 | 7.8 | 6.7 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-----------------------|-------------|-------------|
| | | | | 14-Apr-2009 | 17-Aug-2009 | 27-May-2010 | 24-Jun-2010 |
| | | | | G-40-07 | 40-07 | T-5 | 40-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 147 | 229 | 208 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.05 | 0.09 | <0.05 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2 | <2 | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 43 | 45 | -- | -- |
| Chloride | mg/l | -- | 250 | 43 | 85 | 90 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 15.0 | 18.5 | 13.6 | 16.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | 220 | 240 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | <0.1 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | <0.01 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 1.9 | 1.3 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | <0.1 | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.010 | <0.05 ⁽²²⁾ | 0.01 | -- |
| Phosphorus | mg/l | -- | -- | 0.096 | 0.077 | 0.09 | -- |
| Sulphate | mg/l | -- | 500 ⁽³⁾ | 23 | <5 ⁽²²⁾ | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 300 | 445 | 460 | 480 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.047 | 0.028 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.024 | 0.037 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | <0.0005 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.40 | 0.69 | 0.57 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | <0.0001 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | 38 | 50 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | <0.005 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0012 | 0.0016 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.003 | 0.001 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.8 | 2.1 | 1.04 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | <0.0005 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | 18 | 22 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.13 | 0.22 | 0.32 | 0.31 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | <0.0001 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.001 | <0.001 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.004 | 0.006 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | 2.5 | 4.9 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | 4.0 | 4.1 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | <0.0001 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 ⁽⁴⁾ | 37 | 55 | 54.6 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.20 | 0.29 | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | 7.2 | 2.3 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | <0.00005 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | <0.005 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.002 | 0.003 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | 0.006 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | <0.001 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 440 | 609 | 735 | -- |
| Temperature (Field) | deg c | -- | 15 | 3 | 18.6 | 12.4 | -- |
| pH (Field) | - | -- | -- | 7.8 | 6.54 | 6.90 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 12-Aug-2010 | 09-Sep-2010 | 29-Apr-2011 | 27-May-2011 |
| | | | | C-14 | 40-07 | R-7 | 40-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 231 | -- | 159 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.14 | -- | 0.06 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 100 | -- | 46 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.5 | 16.9 | 17.4 | 16.3 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 240 | -- | 160 | -- |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | -- | < 0.010 | -- |
| Phosphorus | mg/l | -- | -- | 0.12 | -- | 0.2 | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 494 | 484 | 304 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.76 | -- | 0.44 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.39 | 4.11 | 0.83 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.32 | 0.37 | 0.34 | 0.33 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 65.7 | -- | 46.1 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 686 | -- | 532 | -- |
| Temperature (Field) | deg c | -- | 15 | 18.1 | -- | 7.3 | -- |
| pH (Field) | - | -- | -- | 6.84 | -- | 7.38 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|-------------|-------------|
| | | | | 24-Aug-2011 | 05-Jun-2012 | 29-Aug-2012 | 23-Apr-2013 |
| | | | | G 40-07 | 40-07 | 40-07 | R-16 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 211 | 210 | 260 | 180 |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.06 | <0.050 | 0.075 | 0.076 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 93 | 80 | 99 | 45 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 16.8 | 22 | 19 | 18 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 210 | 230 | 230 | 160 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | < 0.010 | < 0.010 | < 0.010 |
| Phosphorus | mg/l | -- | -- | 0.2 | 0.11 | 0.073 | 0.13 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 432 | 416 | 432 | 308 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.75 | 0.64 | 0.82 | 0.62 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.31 | 2.06 | 1.71 | 0.42 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.38 | 0.39 | 0.43 | 0.21 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 62.6 | 58.8 | 76.6 | 53.9 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 631 | 660 | 816 | 542 |
| Temperature (Field) | deg c | -- | 15 | 19.0 | 14.7 | 18.6 | 5.0 |
| pH (Field) | - | -- | -- | 6.82 | 6.88 | 6.77 | 7.52 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 06-Sep-2013 | 12-May-2014 | 26-Aug-2014 | 20-May-2015 |
| | | /03)-Health | AO | G40-07 | 40-07 | 40-07 | 40-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 260 | 210 | 300 | 290 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.11 | 0.081 | 0.11 | <0.050 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 100 | 66 | 110 | 100 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 23 | 22 | 21 | 18 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 240 | 200 | 270 | 290 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | <0.010 | <0.010 | <0.010 |
| Phosphorus | mg/l | -- | -- | 0.079 | 0.16 | 0.10 | 0.14 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 482 | 334 | 546 | 536 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.84 | 0.69 | 0.82 | 0.82 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.72 | 1.3 | 2.3 | 2.4 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.36 | 0.48 | 0.59 | 0.78 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 73.6 | 56 | 81 | 79 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 738 | 615 | 874 | 601 |
| Temperature (Field) | deg c | -- | 15 | 17.1 | 11.2 | 16.3 | 10.4 |
| pH (Field) | - | -- | -- | 6.93 | 7.19 | 7.17 | 7.21 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G40-07 | G40-07 | G40-07 | G40-07 | RPD |
|----------------------------------|--------|---------------------------------|---------------------|----------------------|-----------------------|----------------------|--------------------|-----|
| | | | | 19-Aug-2015 40-07 | 17-June-2016 40-07 | 23-Aug-2016 40-07 | 23-Aug-2016 DUP | |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 320 | 308 | 338 | 341 | 2% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | <0.050 | 0.01 | < 0.01 | < 0.01 | NC |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 110 | 94.4 | 109 | 110 | 2% |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21 | 14.4 | 14.1 | 13.6 | 7% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 280 | 253 | 291 | 292 | 1% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | 0.03 | 0.01 | 0.02 | NC |
| Phosphorus | mg/l | -- | -- | 0.14 | 3.76 | 0.38 | 0.38 | 0% |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 536 | 549 | 634 | 636 | 1% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.98 | 0.713 | 1.19 | 1.19 | 0% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.001 | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.5 | 2.3 | 2.02 | 1.99 | 3% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | 0.606 | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.73 | -- | 0.699 | 0.703 | 1% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 89 | 81 | 97.6 | 97.2 | 1% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 584 | -- | 993 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 12.2 | -- | 15.1 | -- | -- |
| pH (Field) | - | -- | -- | 7.3 | -- | 6.9 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G40-07 | G40-07 | G40-07 | G40-07 | RPD |
|----------------------------------|--------|-----------------------|----------|----------------------|----------------------|----------------------|--------------------|-------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 02-May-2017 40-07 | 21-Sep-2017 40-07 | 01-May-2018 40-07 | 01-May-2018 DUP | |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 192 | 272 | 203 | 205 | 2% |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 | NC |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 45.6 | 77.6 | 56.6 | 57.4 | 3% |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 21 | 19.4 | 18.3 | 18.3 | 0% |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 167 | 272 | 202 | 200 | 2% |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | 0.02 | 0.01 | 0.06 | 1000% |
| Phosphorus | mg/l | -- | -- | 0.34 | 0.19 | 0.25 | 0.25 | 0% |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 295 | 416 | 321 | 323 | 1% |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.654 | 0.896 | 0.557 | 0.562 | 2% |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.89 | 1.96 | 1.74 | 1.68 | 7% |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.245 | 0.523 | 0.493 | 0.483 | 4% |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 58.1 | 84.8 | 57.9 | 58.5 | 2% |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 548 | 689 | 496 | -- | -- |
| Temperature (Field) | deg c | -- | 15 | 6.2 | 14.4 | 3.5 | -- | -- |
| pH (Field) | - | -- | -- | 6.9 | 6.9 | 6.9 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G40-07 | G40-07 | G40-07 | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|---------------------------------|---------------------|----------------------|------------------------|-----------------------|---------------------|------------------------|---------------------|---------------------|
| | | | | 21-Aug-2018 40-07 | 25-April-2019 40-07 | 25-Sept-2019 40-07 | 27-May-20 G40-07 | 4-Nov-20 (6) G40-07 | 27-May-21 G40-07 | 18-Aug-21 G40-07 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 203 | 153 | 257 | 168.00 | -- | 217 | 307 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | < 0.01 | 0.1 | 0.13 | 0.17 | -- | 0.06 | 0.03 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 56.6 | 31.7 | 106 | 47.70 | -- | 79.2 | 118 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20.4 | 28.3 | 16.1 | 14.30 | -- | 5.5 | 14.2 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 262 | 108 | 258 | 158.00 | -- | 243 | 267 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.191 | 0.127 | 0.049 | -- | 0.01 | 0.017 |
| Phosphorus | mg/l | -- | -- | 0.15 | 0.64 | 0.17 | 0.42 | -- | 0.46 | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 462 | 227 | 435 | 273.00 | -- | 433 | 500 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.878 | 0.293 | 0.887 | 0.37 | -- | 0.807 | 0.977 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 22.8 | -- | -- | -- | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | 0.001 | -- | 0.0013 | -- | 0.0006 | 0.0004 |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.83 | 0.923 | 3.6 | 8.64 | -- | 1.82 | 2.57 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 12.4 | -- | -- | -- | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.657 | 0.354 | 0.793 | 0.611 | -- | 0.634 | 0.531 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.0039 | -- | 0.0043 | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 89.9 | 52.9 | 76.8 | 46.40 | -- | 81.4 | 94.2 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0077 | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 607 | 485 | 761 | 402.00 | -- | 767 | 970 |
| Temperature (Field) | deg c | -- | 15 | 16.4 | 2 | 14.6 | 8.00 | -- | 9.8 | 16.8 |
| pH (Field) | - | -- | -- | 6.9 | 7.8 | 7.35 | 7.60 | -- | 6.3 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G40-07 | G40-07 | G40-07 | G40-07 |
|----------------------------------|--------|------------------------------|-----------------|-----------|-----------|-----------|-----------|
| | | | | 31-May-22 | 28-Oct-22 | 05-May-23 | 14-Aug-23 |
| | | | | G40-07 | G40-08 | G40-07 | G39-07 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 234 | 292 | 170 | 319 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.05 | 0.07 | 0.03 | <0.05 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | -- | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | -- | -- | -- |
| Chloride | mg/l | -- | 250 | 80.4 | 106 | 43.8 | 96.8 |
| Conductivity | µmho/c | -- | -- | 0 | -- | 488 | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 14.4 | 8.5 | 18.0 | 16.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 224 | 268 | 131 | 257 |
| Nitrate as N | mg/l | 10 | -- | -- | -- | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.039 | 0.014 | 0.027 | 0.012 |
| Phosphorus | mg/l | -- | -- | 0.31 | -- | 1.08 | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 402 | 494 | 261 | 475 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | -- | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.737 | 0.739 | 0.502 | 0.779 |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | -- | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | -- | 29.2 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | -- | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | -- | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 4.72 | 2.08 | 1.57 | 4.07 |
| Lead, dissolved | mg/l | 0.01 | -- | -- | -- | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | -- | 14.1 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.418 | 0.463 | 0.292 | 0.540 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 78.3 | 87.4 | 56.1 | 91.3 |
| Strontium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 750 | 400 | 422 | 769 |
| Temperature (Field) | deg c | -- | 15 | 10.3 | 9.7 | 7.7 | 16.5 |
| pH (Field) | - | -- | -- | 7.1 | 7.15 | 7.20 | 7.08 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|------------------------------|-----------------|-------------|-------------|-------------|-------------|
| | | | | 27-May-2010 | 24-Jun-2010 | 12-Aug-2010 | 09-Sep-2010 |
| | | | | T-9 | 42-10 | C-16 | 42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 576 | -- | 562 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 2.1 | -- | 2.6 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 6 | -- | 5 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 120 | -- | 97 | -- |
| Chloride | mg/l | -- | 250 | 100 | -- | 110 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 48.8 | 18.2 | 19.5 | 21.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 210 | -- | 230 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | <0.1 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.01 | -- | <0.01 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 7 | -- | 5 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.1 | -- | <0.1 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | -- | 0.01 | -- |
| Phosphorus | mg/l | -- | -- | 0.5 | -- | 0.4 | -- |
| Sulphate | mg/l | -- | 500 (3) | 14 | -- | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 844 | 820 | 854 | 820 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.021 | -- | 0.055 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.022 | -- | 0.026 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | -- | <0.0005 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.79 | -- | 0.70 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | -- | <0.0001 | -- |
| Calcium, dissolved | mg/l | -- | -- | 39 | -- | 45 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | -- | <0.005 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0051 | -- | 0.0033 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | -- | 0.001 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.5 | -- | 7.1 | 4.61 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | -- | <0.0005 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 26 | -- | 28 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.42 | 0.58 | 0.48 | 0.42 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.028 | -- | 0.015 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.009 | -- | 0.008 | -- |
| Potassium, dissolved | mg/l | -- | -- | 8.3 | -- | 8.1 | -- |
| Silicon, dissolved | mg/l | -- | -- | 9.9 | -- | 11 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 250 | 190 | 230 | 229 |
| Strontium, dissolved | mg/l | -- | -- | 0.22 | -- | 0.24 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 4.4 | -- | 1.8 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | <0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | -- | <0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.002 | -- | 0.003 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.054 | -- | 0.013 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | -- | <0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1376 | -- | 1209 | -- |
| Temperature (Field) | deg c | -- | 15 | 13.8 | -- | 15.4 | -- |
| pH (Field) | - | -- | -- | 7.26 | -- | 7.00 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G42-10 | | G42-10 | |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|------------------|-------------|
| | | | | 02-May-2011 | 27-May-2011 | 25-Aug-2011 (20) | 07-Sep-2011 |
| | | | | S-6 | 42-10 | G43-10 | 42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 448 | -- | 568 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | <0.02 | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.5 | -- | 2.2 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 3 | -- | 4 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 92 | -- | 73 | -- |
| Chloride | mg/l | -- | 250 | 110 | -- | 110 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 17.2 | 22.3 | 19.0 | 18.0 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 250 | -- | 220 | -- |
| Nitrate as N | mg/l | 10 | -- | 0.2 | -- | <0.1 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.08 | -- | 0.06 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5 | -- | 4 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.3 | -- | <0.1 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | < 0.01 | -- | 0.02 | -- |
| Phosphorus | mg/l | -- | -- | 0.45 | -- | 0.22 | -- |
| Sulphate | mg/l | -- | 500 (3) | <1 | -- | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 706 | 774 | 1000 | 968 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.029 | -- | 0.012 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.039 | -- | 0.031 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | -- | <0.0005 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.50 | -- | 0.71 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | -- | <0.0001 | -- |
| Calcium, dissolved | mg/l | -- | -- | 51 | -- | 43 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | -- | <0.005 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0017 | -- | 0.0013 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | -- | 0.001 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 16 | 12.1 | 2.5 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | -- | <0.0005 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 29 | -- | 28 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.63 | 0.58 | 0.46 | 0.43 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.004 | -- | 0.0044 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.005 | -- | 0.004 | -- |
| Potassium, dissolved | mg/l | -- | -- | 6.4 | -- | 7.5 | -- |
| Silicon, dissolved | mg/l | -- | -- | 8.9 | -- | 11 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 200 | 192 | 230 | -- |
| Strontium, dissolved | mg/l | -- | -- | 0.25 | -- | 0.22 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 1.1 | -- | 2.0 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | <0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | -- | <0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.002 | -- | 0.0008 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.013 | -- | 0.014 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | -- | <0.001 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1128 | -- | 659 | -- |
| Temperature (Field) | deg c | -- | 15 | 5.7 | -- | 18.3 | -- |
| pH (Field) | - | -- | -- | 7.68 | -- | 6.79 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|-----------------------|----------|---------------------------|----------------------|----------------------|----------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 05-Jun-2012 (15) 42-10 | 04-Jul-2012 42-10 | 29-Aug-2012 42-10 | 05-Oct-2012 42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 390 | -- | 490 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.1 | -- | 2.5 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4.0 | -- | 4.0 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 120 | -- | 70 | -- |
| Chloride | mg/l | -- | 250 | 100 | -- | 100 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 38 | 31 | 25 | 21 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 230 | -- | 230 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.10 | -- | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.12 | -- | 0.031 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.2 | -- | 3.3 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.21 | -- | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.03 | -- | < 0.010 | -- |
| Phosphorus | mg/l | -- | -- | 0.20 | -- | 0.16 | -- |
| Sulphate | mg/l | -- | 500 (3) | 34 | -- | 29 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 740 | 704 | 826 | 750 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.11 | -- | 0.025 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.035 | -- | 0.033 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | -- | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.51 | -- | 0.55 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | -- | <0.00010 | -- |
| Calcium, dissolved | mg/l | -- | -- | 48 | -- | 48 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | -- | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0021 | -- | 0.0016 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.0018 | -- | 0.0031 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 8.4 | 1.98 | 0.45 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | -- | <0.00050 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 27 | -- | 26 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.6 | 0.47 | 0.67 | 0.30 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0017 | -- | 0.0018 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0056 | -- | 0.0048 | -- |
| Potassium, dissolved | mg/l | -- | -- | 6.6 | -- | 7.1 | -- |
| Silicon, dissolved | mg/l | -- | -- | 9.1 | -- | 9.5 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | -- | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 200 | 139 | 180 | 142 |
| Strontium, dissolved | mg/l | -- | -- | 0.24 | -- | 0.22 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 12 | -- | 8.0 | -- |
| Thallium, dissolved | mg/l | -- | -- | 0.000080 | -- | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.0083 | -- | <0.0050 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0029 | -- | 0.0012 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.0098 | -- | 0.02 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1061 | -- | 1252 | -- |
| Temperature (Field) | deg c | -- | 15 | 12.2 | -- | 27.4 | -- |
| pH (Field) | - | -- | -- | 6.77 | -- | 7.06 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 23-Apr-2013 | 28-May-2013 | 06-Sep-2013 | 15-Oct-2013 |
| | | /03)-Health | AO | S-5 | 42-10 | G42-10 | 42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 300 | -- | 410 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.84 | -- | 1.9 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | -- | <2.0 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 75 | -- | 91 | -- |
| Chloride | mg/l | -- | 250 | 230 | 320 | 220 | 210 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 19 | 20 | 24 | 20 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 350 | -- | 340 | -- |
| Nitrate as N | mg/l | 10 | -- | 0.50 | -- | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.097 | -- | 0.081 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.3 | -- | 3.8 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.60 | -- | 0.11 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.013 | -- | 0.016 | -- |
| Phosphorus | mg/l | -- | -- | 0.17 | <0.1 | 0.27 | -- |
| Sulphate | mg/l | -- | 500 (3) | 34 | -- | 18 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 766 | 810 | 870 | 818 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.1 | 0.22 | 0.064 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.07 | 0.11 | 0.076 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | <0.0005 | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.21 | 0.14 | 0.38 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.00012 | 0.0003 | <0.00010 | -- |
| Calcium, dissolved | mg/l | -- | -- | 79 | 82 | 75 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | <0.005 | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0017 | 0.0044 | 0.0025 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.0053 | 0.005 | 0.0014 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 1.7 | 1.5 | 4.2 | 0.3 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | <0.0005 | 0.00051 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 38 | 39 | 38 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.56 | 0.68 | 1 | 0.45 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | 0.0005 | 0.0013 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0041 | 0.006 | 0.0059 | -- |
| Potassium, dissolved | mg/l | -- | -- | 4 | 2.1 | 6.9 | -- |
| Silicon, dissolved | mg/l | -- | -- | 4.7 | 3.4 | 7.8 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | <0.0001 | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 160 | 170 | 180 | 170 |
| Strontium, dissolved | mg/l | -- | -- | 0.35 | 0.44 | 0.35 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 12.1 | -- | 5.1 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | <0.00005 | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | 0.007 | <0.0050 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0017 | 0.0029 | 0.0022 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.016 | 0.021 | 0.013 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 843 | -- | 1407 | 1293 |
| Temperature (Field) | deg c | -- | 15 | 4.9 | -- | 13.4 | 12.2 |
| pH (Field) | - | -- | -- | 7.77 | -- | 7.25 | 6.99 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|------------------|-------------|
| | | | | 12-May-2014 | 06-Jun-2014 | 26-Aug-2014 (21) | 23-Sep-2014 |
| | | | | 42-10 | MW 42 | 43-11 | G-42 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 330 | -- | 250 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.99 | -- | 0.84 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | -- | <2.0 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 66 | -- | 110 | -- |
| Chloride | mg/l | -- | 250 | 180 | 210 | 220 | 240 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 20 | 23 | 29 | 32 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 260 | -- | 300 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.10 | -- | <0.50 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.029 | -- | 0.061 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2.9 | -- | 4.2 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | -- | <0.50 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.028 | -- | 0.020 | -- |
| Phosphorus | mg/l | -- | -- | 0.17 | -- | 0.23 | -- |
| Sulphate | mg/l | -- | 500 (3) | 19 | -- | 13 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 782 | 706 | 772 | 784 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.041 | -- | 0.14 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.073 | -- | 0.065 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | -- | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.36 | -- | 0.28 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | -- | 0.00012 | -- |
| Calcium, dissolved | mg/l | -- | -- | 55 | -- | 64 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | -- | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0013 | -- | 0.0024 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | -- | 0.0045 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 3.1 | 2.9 | 4.7 | 2.2 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | -- | <0.00050 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 31 | -- | 34 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.69 | 0.68 | 0.81 | 0.51 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.0005 | -- | 0.0011 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.004 | -- | 0.0080 | -- |
| Potassium, dissolved | mg/l | -- | -- | 5.4 | -- | 5.6 | -- |
| Silicon, dissolved | mg/l | -- | -- | 6.6 | -- | 7.1 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 150 | 140 | 150 | 140 |
| Strontium, dissolved | mg/l | -- | -- | 0.26 | -- | 0.3 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 5.3 | -- | 4.3 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | -- | 0.0053 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0017 | -- | 0.0026 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.008 | -- | 0.012 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1212 | -- | 1232 | -- |
| Temperature (Field) | deg c | -- | 15 | 9.4 | -- | 14.9 | -- |
| pH (Field) | - | -- | -- | 6.82 | -- | 7.86 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS-AO | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|------------------------------|-----------------|------------------|-------------|------------------|-------------|
| | | | | 20-May-2015 (22) | 17-Jun-2015 | 18-Aug-2015 (22) | 30-Sep-2015 |
| | | | | 42 | 42 | 42-10 | G42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 190 | -- | 280 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.85 | -- | 1.3 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | <2.0 | -- | 3.0 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 100 | -- | 120 | -- |
| Chloride | mg/l | -- | 250 | 150 | 150 | 160 | 140 |
| Conductivity | umho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 30 | 40 | 38 | 47 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 320 | -- | 220 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.50 | -- | <0.50 | -- |
| Nitrite as N | mg/l | 1.0 | -- | <0.050 | -- | 0.085 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 2.5 | -- | 2.9 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.50 | -- | <0.50 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | -- | 0.027 | -- |
| Phosphorus | mg/l | -- | -- | 0.18 | -- | 0.35 | -- |
| Sulphate | mg/l | -- | 500 (3) | 4 | -- | < 1.0 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 640 | 486 | 756 | 692 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.054 | -- | 0.23 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.044 | -- | 0.044 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | -- | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.36 | -- | 0.17 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.0002 | -- | <0.00010 | -- |
| Calcium, dissolved | mg/l | -- | -- | 67 | -- | 48 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | -- | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0018 | -- | 0.0023 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.001 | -- | 0.0029 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 7.6 | 1.2 | 2.3 | 1.5 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | -- | <0.00050 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 37 | -- | 25 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.97 | 0.48 | 0.49 | 0.22 |
| Mercury | mg/l | -- | -- | -- | -- | <0.0001 | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0007 | -- | <0.00050 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.005 | -- | 0.0090 | -- |
| Potassium, dissolved | mg/l | -- | -- | 7.1 | -- | 3.7 | -- |
| Silicon, dissolved | mg/l | -- | -- | 9 | -- | 5.4 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 160 | 110 | 130 | 130 |
| Strontium, dissolved | mg/l | -- | -- | 0.3 | -- | 0.22 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 4.4 | -- | 3.1 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | -- | 0.0095 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0021 | -- | 0.0024 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.016 | -- | <0.0050 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1304 | 1417 | 784 | 1384 |
| Temperature (Field) | deg c | -- | 15 | 9.2 | 9.8 | 11.3 | 10.1 |
| pH (Field) | - | -- | -- | 6.91 | 6.89 | 6.95 | 6.85 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|---------------------------------|---------------------|--------------|-------------|-------------|-------------|
| | | | | 16-June-2016 | 23-Aug-2016 | 02-May-2017 | 21-Sep-2017 |
| | | | | G42-10 | G42-11 | G42-11 | G42-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 326 | 333 | 69 | 313 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.44 | 1.29 | 0.21 | 1.78 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | 5 | < 3 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 106 | 124 | 200 | 125 |
| Chloride | mg/l | -- | 250 | 141 | 121 | 266 | 296 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | 1630 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 9.6 | 27.4 | 10.2 | 30.9 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 250 | 231 | 165 | 406 |
| Nitrate as N | mg/l | 10 | -- | 0.1 | 0.3 | 0.86 | < 0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.1 | < 0.1 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.3 | 3.6 | 3.75 | 4.2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.1 | 0.08 | 0.07 |
| Phosphorus | mg/l | -- | -- | 1.48 | 0.29 | 0.54 | 0.18 |
| Sulphate | mg/l | -- | 500 (3) | 5 | 13 | 17 | 5 |
| Total Dissolved Solids | mg/l | -- | 500 | 651 | 677 | 543 | 977 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.17 | 0.09 | 0.29 | 0.17 |
| Barium, dissolved | mg/l | 1 | -- | 0.028 | 0.027 | 0.048 | 0.068 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.208 | 0.325 | 0.069 | 0.327 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.00002 | 0.00002 | 0.000048 | < 0.000014 |
| Calcium, dissolved | mg/l | -- | -- | 54.9 | 49.8 | 36.6 | 89.4 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.003 | < 0.002 | 0.002 | 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0019 | 0.0014 | 0.001 | < 0.005 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | 0.007 | 0.005 | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 5.53 | 2.76 | 0.534 | 7 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00021 | 0.00065 | 0.00017 | 0.00013 |
| Magnesium, dissolved | mg/l | -- | -- | 27.5 | 25.9 | 17.9 | 44.5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.856 | 0.628 | 0.211 | 0.891 |
| Mercury | mg/l | -- | -- | < 0.00002 | < 0.00002 | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | -- | 0.00012 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0008 | 0.0016 | 0.0006 | 0.0006 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 5.5 | 6.2 | 1.2 | 8 |
| Silicon, dissolved | mg/l | -- | -- | 7.47 | 8.26 | 3.25 | 8.83 |
| Silver, dissolved | mg/l | -- | -- | 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 125 | 149 | 162 | 242 |
| Strontium, dissolved | mg/l | -- | -- | 0.249 | 0.228 | 0.205 | 0.417 |
| Sulfur, dissolved | mg/l | -- | -- | 3 | 4.8 | 6.6 | 3.2 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.006 | < 0.005 | 0.007 | 0.007 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0049 | 0.0042 | 0.0024 | 0.0046 |
| Zinc, dissolved | mg/l | -- | 5 | 0.009 | 0.03 | 0.007 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 949 | 1010 | 1234 | 1520 |
| Temperature (Field) | deg c | -- | 15 | 8.7 | 10.6 | 6.1 | 12 |
| pH (Field) | - | -- | -- | 6.8 | 6.8 | 6.8 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G42-10 | G42-10 | G42-10 | G42-10 | G42-10 | G42-10 | G42-10 | G42-10 | G42-10 27-May-2021 Dup #3 | RPD |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|---------------|--------------|-------------|------------|-------------|-----------|---------------------------------|-----|
| | | | | 01-May-2018 | 21-Aug-2018 | 24-April-2019 | 25-Sept-2019 | 26-May-2020 | 4-Nov-2020 | 27-May-2021 | | | |
| | | | | G42-11 | G42-11 | G42-11 | G42-10 | G42-10 | G42-10 | G42-10 | | | |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 203 | 307 | 193 | 324 | 150 | 230 | 301 | 266 | 12.35% | |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Ammonia Nitrogen | mg/l | -- | -- | 0.7 | 1.72 | 0.46 | 2.25 | 0.79 | 1.53 | 1.59 | 1.34 | 17.06% | |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | 9 | < 3 | < 3 | 6 | 6 | 0.00% | |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chemical Oxygen Demand | mg/l | -- | -- | 213 | 605 | 155 | 129 | 121 | 194 | 188 | 201 | 6.68% | |
| Chloride | mg/l | -- | 250 | 231 | 226 | 172 | 210 | 183 | 241 | 188 | 183 | 2.70% | |
| Conductivity | µmho/c | -- | -- | 1170 | 1290 | 933 | 1265 | -- | -- | -- | -- | -- | |
| Dissolved Organic Carbon | mg/l | -- | 5 | 26.6 | 20.3 | 45.8 | 32.5 | 32.3 | 50.5 | 11.9 | 51.3 | 124.68% | |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 261 | 289 | 196 | 290 | 167 | 255 | 176 | 186 | 5.52% | |
| Nitrate as N | mg/l | 10 | -- | 0.12 | < 0.05 | 0.12 | < 0.05 | 0.11 | 0.09 | < 0.05 | 0.19 | NC | |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.08 | 0.18 | 0.15 | 18.18% | |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.2 | 4.5 | 3.4 | 4.5 | 3 | 5.8 | 4.4 | 4.6 | 4.44% | |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate, Ortho | mg/l | -- | -- | 0.04 | 0.01 | 0.134 | 0.134 | 0.062 | 0.116 | 0.103 | 0.123 | 17.70% | |
| Phosphorus | mg/l | -- | -- | 0.32 | 0.24 | 0.36 | 0.19 | 0.28 | 0.43 | 0.43 | 0.38 | 12.35% | |
| Sulphate | mg/l | -- | 500 (3) | 8 | 8 | 25 | 9 | 23 | 54 | 27 | 27 | 0.00% | |
| Total Dissolved Solids | mg/l | -- | 500 | 614 | 698 | 496 | 691 | 471 | 713 | 603 | 586 | 2.86% | |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Metals | | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.22 | 0.1 | 0.36 | 0.1 | 0.37 | 0.49 | 0.63 | 0.59 | 6.56% | |
| Barium, dissolved | mg/l | 1 | -- | 0.05 | 0.043 | 0.039 | 0.036 | 0.039 | 0.065 | 0.039 | 0.041 | 5.00% | |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | NC | |
| Boron, dissolved | mg/l | 5 | -- | 0.162 | 0.298 | 0.116 | 0.362 | 0.116 | 0.237 | 0.186 | 0.194 | 4.21% | |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000022 | < 0.000015 | 0.000085 | < 0.000015 | 0.000033 | 0.00006 | 0.000054 | 0.000041 | 27.37% | |
| Calcium, dissolved | mg/l | -- | -- | 54.6 | 63 | 41.1 | 63.2 | 35.5 | 57.6 | 37.9 | 40.7 | 7.12% | |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.002 | 0.003 | 0.002 | 0.003 | 0.004 | 0.004 | 0.004 | 0.00% | |
| Cobalt, dissolved | mg/l | -- | -- | 0.0016 | 0.0014 | 0.0016 | 0.001 | 0.0022 | 0.0009 | 0.0016 | 0.0015 | 6.45% | |
| Copper, dissolved | mg/l | -- | 1 | 0.0025 | 0.0011 | 0.0087 | 0.0018 | 0.0041 | 0.0127 | 0.0188 | 0.0156 | 18.60% | |
| Iron, dissolved | mg/l | -- | 0.3 | 2.78 | 5 | 0.883 | 5.38 | 2 | 1.36 | 2.2 | 2.32 | 5.31% | |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00051 | 0.00026 | 0.00077 | 0.00009 | 0.00065 | 0.0013 | 0.00131 | 0.00099 | 27.83% | |
| Magnesium, dissolved | mg/l | -- | -- | 30.2 | 32.1 | 22.7 | 32.2 | 19 | 27.1 | 19.7 | 20.4 | 3.49% | |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.824 | 0.772 | 0.436 | 0.825 | 0.514 | 0.265 | 0.375 | 0.386 | 2.89% | |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | NC | |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0005 | 0.0008 | 0.0005 | 0.0005 | 0.0007 | 0.0011 | 0.0009 | 0.0008 | 11.76% | |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | 0.0074 | < 0.01 | 0.0083 | 0.0061 | 0.0101 | 0.0103 | 1.96% | |
| Potassium, dissolved | mg/l | -- | -- | 4.5 | 7 | 2.7 | 7.4 | 2.2 | 2.7 | 3.1 | 3.1 | 0.00% | |
| Silicon, dissolved | mg/l | -- | -- | 5.5 | 8.44 | 3.87 | 9.31 | 3.31 | 3.67 | 4.56 | 4.63 | 1.52% | |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0003 | < 0.0001 | < 0.0001 | NC | |
| Sodium, dissolved | mg/l | -- | 200 (4) | 160 | 170 | 114 | 166 | 114 | 189 | 141 | 148 | 4.84% | |
| Strontium, dissolved | mg/l | -- | -- | 0.257 | 0.267 | 0.201 | 0.284 | 0.172 | 0.284 | 0.19 | 0.197 | 3.62% | |
| Sulfur, dissolved | mg/l | -- | -- | 3.5 | 5.3 | 7.1 | 4.4 | 6.9 | 26.9 | 8.5 | 8.8 | 3.47% | |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | 0.00006 | < 0.00005 | < 0.00005 | NC | |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Titanium, dissolved | mg/l | -- | -- | 0.006 | 0.006 | 0.016 | 0.007 | 0.021 | 0.034 | 0.051 | 0.049 | 4.00% | |
| Vanadium, dissolved | mg/l | -- | -- | 0.0022 | 0.0034 | 0.0035 | 0.004 | 0.0046 | 0.0077 | 0.0074 | 0.0069 | 6.99% | |
| Zinc, dissolved | mg/l | -- | 5 | 0.013 | 0.011 | 0.007 | < 0.005 | < 0.005 | 0.007 | 0.006 | 0.005 | 18.18% | |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | 0.012 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | NC | |
| Field Measurements | | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 917 | 897 | 960 | 1126 | 1311 | 1055 | 1006 | -- | -- | |
| Temperature (Field) | deg c | -- | 15 | 4 | 11.8 | 7.1 | 13.3 | 10.6 | 8.4 | 7.3 | -- | -- | |
| pH (Field) | - | -- | -- | 6.8 | 6.9 | 6.5 | 7.3 | 7.6 | 8.9 | 6.7 | -- | -- | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G42-10 |
|----------------------------------|--------|-----------------------|----------|---------------------|
| | | ODWQS(169 /03)-Health | ODWQS-AO | 18-Aug-21 G42-10 |
| General Chemistry | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 240 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.85 |
| Bicarbonate | mg/l | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 |
| Bromide | mg/l | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 192 |
| Chloride | mg/l | -- | 250 | 193 |
| Conductivity | µmho/c | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 43 |
| Fluoride | mg/l | 1.5 | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 251 |
| Nitrate as N | mg/l | 10 | -- | 2.25 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- |
| Phosphate | mg/l | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.091 |
| Phosphorus | mg/l | -- | -- | 0.48 |
| Sulphate | mg/l | -- | 500 (3) | 41 |
| Total Dissolved Solids | mg/l | -- | 500 | 618 |
| Total Organic Carbon | mg/l | -- | -- | -- |
| Metals | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.48 |
| Barium, dissolved | mg/l | 1 | -- | 0.051 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.244 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000042 |
| Calcium, dissolved | mg/l | -- | -- | 53.7 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0021 |
| Copper, dissolved | mg/l | -- | 1 | 0.0064 |
| Iron, dissolved | mg/l | -- | 0.3 | 4.34 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00147 |
| Magnesium, dissolved | mg/l | -- | -- | 28.5 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.897 |
| Mercury | mg/l | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0012 |
| Nickel, dissolved | mg/l | -- | -- | 0.0101 |
| Potassium, dissolved | mg/l | -- | -- | 5.4 |
| Silicon, dissolved | mg/l | -- | -- | 6.36 |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 146 |
| Strontium, dissolved | mg/l | -- | -- | 0.242 |
| Sulfur, dissolved | mg/l | -- | -- | 13.3 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.033 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0073 |
| Zinc, dissolved | mg/l | -- | 5 | 0.026 |
| Phenols | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.002 |
| Field Measurements | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1200 |
| Temperature (Field) | deg c | -- | 15 | 13.3 |
| pH (Field) | - | -- | -- | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G42-10 | G42-10 | G42-10 | G42-10 |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-----------|-----------|-----------|
| | | | | 31-May-2022 | 28-Oct-22 | 04-May-23 | 15-Aug-23 |
| | | | | G42-10 | G42-10 | G42-10 | G42-10 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 189 | 287 | 118 | 210 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 0.44 | 1.5 | 0.09 | 0.68 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | 7 | 4 | <3 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 249 | 421 | 106 | 198 |
| Chloride | mg/l | -- | 250 | 112 | 118 | 300 | 230 |
| Conductivity | µmho/c | -- | -- | 765 | 1020 | 1240 | 0.988 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 74.4 | 72.9 | 12.9 | 40.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 148 | 239 | 245 | 224 |
| Nitrate as N | mg/l | 10 | -- | 0.24 | 0.18 | 0.23 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | 0.09 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 5.4 | 10.2 | 3.1 | 4.6 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.102 | 0.137 | 0.035 | 0.067 |
| Phosphorus | mg/l | -- | -- | 0.33 | 0.86 | 0.27 | 0.37 |
| Sulphate | mg/l | -- | 500 (3) | 24 | 36 | 27 | 23 |
| Total Dissolved Solids | mg/l | -- | 500 | 413 | 570 | 641 | 630 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 1.01 | 0.94 | 0.25 | 0.42 |
| Barium, dissolved | mg/l | 1 | -- | 0.041 | 0.048 | 0.082 | 0.050 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | 0.0002 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.136 | 0.332 | 0.136 | 0.210 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.00008 | 0.000022 | 0.000055 | 0.000049 |
| Calcium, dissolved | mg/l | -- | -- | 31.9 | 53.2 | 53.2 | 47.1 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.005 | 0.01 | 0.002 | 0.004 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0029 | 0.0024 | 0.0013 | 0.0024 |
| Copper, dissolved | mg/l | -- | 1 | 0.0166 | 0.0051 | 0.0094 | 0.0064 |
| Iron, dissolved | mg/l | -- | 0.3 | 2.46 | 6.1 | 0.815 | 3.66 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00105 | 0.0017 | 0.00035 | 0.00098 |
| Magnesium, dissolved | mg/l | -- | -- | 16.7 | 25.9 | 27.2 | 25.8 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.385 | 0.725 | 0.432 | 0.645 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.001 | 0.0011 | 0.0005 | 0.001 |
| Nickel, dissolved | mg/l | -- | -- | 0.0135 | 0.01 | < 0.01 | 0.0097 |
| Potassium, dissolved | mg/l | -- | -- | 2.2 | 6.1 | 2.6 | 4.3 |
| Silicon, dissolved | mg/l | -- | -- | 3.93 | 6.23 | 3.5 | 4.45 |
| Silver, dissolved | mg/l | -- | -- | 0.0002 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 109 | 150 | 159 | 159 |
| Strontium, dissolved | mg/l | -- | -- | 0.162 | 0.23 | 0.296 | 0.246 |
| Sulfur, dissolved | mg/l | -- | -- | 9.7 | 13.9 | 9.7 | 8.98 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.056 | 0.07 | 0.012 | 0.028 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0101 | 0.0246 | 0.003 | 0.0089 |
| Zinc, dissolved | mg/l | -- | 5 | 0.011 | 0.01 | < 0.005 | 0.007 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 860 | 880 | 1221 | 987 |
| Temperature (Field) | deg c | -- | 15 | 9.6 | 9.9 | 6.8 | 14.6 |
| pH (Field) | - | -- | -- | 7.1 | 6.89 | 6.82 | 6.95 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|---------------------------------|---------------------|------------------|-------------|------------------|-------------|
| | | | | 25-Aug-2011 (20) | 07-Sep-2011 | 05-Jun-2012 (15) | 04-Jul-2012 |
| | | | | G42-10 | 43-11 | 43-11 | 43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 402 | -- | 420 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | <0.02 | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 4.0 | -- | 4.2 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 4 | -- | 10 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 360 | -- | 300 | -- |
| Chloride | mg/l | -- | 250 | 17 | -- | 18 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 32.4 | 32 | 40 | 34 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 170 | -- | 190 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.1 | -- | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.14 | -- | <0.010 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 15 | -- | 15 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | 0.2 | -- | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.02 | -- | 0.066 | -- |
| Phosphorus | mg/l | -- | -- | 7.8 | -- | 6.2 | -- |
| Sulphate | mg/l | -- | 500 (3) | <1 | -- | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 520 | 596 | 630 | 680 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.071 | -- | 0.053 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.050 | -- | 0.032 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.0005 | -- | <0.00050 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.39 | -- | 0.5 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.0001 | -- | <0.00010 | -- |
| Calcium, dissolved | mg/l | -- | -- | 43 | -- | 44 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.005 | -- | <0.0050 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.0018 | -- | 0.00058 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.002 | -- | 0.0012 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.8 | 1.93 | 1.1 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | <0.0005 | -- | <0.00050 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 16 | -- | 19 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.26 | 0.25 | 0.19 | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0018 | -- | 0.00056 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.006 | -- | 0.0020 | -- |
| Potassium, dissolved | mg/l | -- | -- | 6.1 | -- | 8.8 | -- |
| Silicon, dissolved | mg/l | -- | -- | 9.3 | -- | 11 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | -- | <0.00010 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 100 | 139 | 150 | 113 |
| Strontium, dissolved | mg/l | -- | -- | 0.19 | -- | 0.22 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 1.2 | -- | <5 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | -- | <0.000050 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.005 | -- | <0.0050 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0034 | -- | 0.0029 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.006 | -- | 0.0055 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | 0.002 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1152 | -- | 857 | -- |
| Temperature (Field) | deg c | -- | 15 | 15.7 | -- | 16.7 | -- |
| pH (Field) | - | -- | -- | 7.00 | -- | 7.42 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 29-Aug-2012 | 05-Oct-2012 | 23-Apr-2013 | 28-May-2013 |
| | | /03)-Health | AO | 43-11 | 43-11 | S-4 | 43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 430 | -- | 540 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 5.4 | -- | 5.9 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 10 | -- | 11 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 300 | -- | 150 | -- |
| Chloride | mg/l | -- | 250 | 19 | -- | 25 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 38 | 30 | 23 | 27 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 190 | -- | 210 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.10 | -- | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.015 | -- | <0.010 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 29 | -- | 18 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | -- | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.021 | -- | 0.053 | -- |
| Phosphorus | mg/l | -- | -- | 9.2 | -- | 12 | 0.36 |
| Sulphate | mg/l | -- | 500 (3) | <1 | -- | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 530 | 652 | 670 | 622 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.056 | -- | 0.021 | 0.075 |
| Barium, dissolved | mg/l | 1 | -- | 0.025 | -- | 0.019 | 0.02 |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | -- | <0.00050 | <0.0005 |
| Boron, dissolved | mg/l | 5 | -- | 0.53 | -- | 0.64 | 0.44 |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | -- | <0.00010 | <0.0001 |
| Calcium, dissolved | mg/l | -- | -- | 47 | -- | 50 | 39 |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | -- | <0.0050 | <0.005 |
| Cobalt, dissolved | mg/l | -- | -- | 0.00052 | -- | 0.00055 | 0.0006 |
| Copper, dissolved | mg/l | -- | 1 | 0.0047 | -- | <0.0010 | <0.001 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.3 | -- | 2.5 | 2.5 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | -- | <0.00050 | <0.0005 |
| Magnesium, dissolved | mg/l | -- | -- | 17 | -- | 21 | 17 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | -- | 0.21 | 0.17 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | -- | <0.00050 | <0.0005 |
| Nickel, dissolved | mg/l | -- | -- | 0.0034 | -- | 0.0012 | 0.003 |
| Potassium, dissolved | mg/l | -- | -- | 7.9 | -- | 9.6 | 7.3 |
| Silicon, dissolved | mg/l | -- | -- | 11 | -- | 12 | 10 |
| Silver, dissolved | mg/l | -- | -- | 0.00011 | -- | <0.00010 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 130 | 168 | 210 | 140 |
| Strontium, dissolved | mg/l | -- | -- | 0.2 | -- | 0.21 | 0.19 |
| Sulfur, dissolved | mg/l | -- | -- | 0.8 | -- | 0.8 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | -- | <0.000050 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | -- | <0.0050 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0028 | -- | 0.0022 | 0.0020 |
| Zinc, dissolved | mg/l | -- | 5 | 0.0070 | -- | <0.0050 | 0.011 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 800 | -- | 809 | -- |
| Temperature (Field) | deg c | -- | 15 | 18.0 | -- | 5.9 | -- |
| pH (Field) | - | -- | -- | 7.16 | -- | 7.79 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|-------------|---------|-------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 06-Sep-2013 | 15-Oct-2013 | 12-May-2014 | 06-Jun-2014 |
| | | /03)-Health | AO | G43-11 | 43-10 | 43-11 | MW 43 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 410 | -- | 550 | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 3.9 | -- | 3.8 | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 2.0 | -- | 13 | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 260 | -- | 350 | -- |
| Chloride | mg/l | -- | 250 | 20 | -- | 28 | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | 33 | 31 | 25 | 27 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 180 | -- | 180 | -- |
| Nitrate as N | mg/l | 10 | -- | <0.10 | -- | <0.10 | -- |
| Nitrite as N | mg/l | 1.0 | -- | 0.023 | -- | <0.010 | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 13 | -- | 15 | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | <0.10 | -- | <0.10 | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | <0.010 | -- | <0.010 | -- |
| Phosphorus | mg/l | -- | -- | 6.7 | -- | 9.6 | -- |
| Sulphate | mg/l | -- | 500 (3) | <1 | -- | <1 | -- |
| Total Dissolved Solids | mg/l | -- | 500 | 634 | 700 | 598 | 736 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.037 | -- | 0.024 | -- |
| Barium, dissolved | mg/l | 1 | -- | 0.028 | -- | 0.022 | -- |
| Beryllium, dissolved | mg/l | -- | -- | <0.00050 | -- | <0.0005 | -- |
| Boron, dissolved | mg/l | 5 | -- | 0.5 | -- | 0.62 | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | <0.00010 | -- | <0.0001 | -- |
| Calcium, dissolved | mg/l | -- | -- | 46 | -- | 44 | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | <0.0050 | -- | <0.005 | -- |
| Cobalt, dissolved | mg/l | -- | -- | 0.00068 | -- | 0.0007 | -- |
| Copper, dissolved | mg/l | -- | 1 | 0.0018 | -- | <0.001 | -- |
| Iron, dissolved | mg/l | -- | 0.3 | 0.11 | -- | 2.5 | 2.5 |
| Lead, dissolved | mg/l | 0.01 | -- | <0.00050 | -- | <0.0005 | -- |
| Magnesium, dissolved | mg/l | -- | -- | 16 | -- | 18 | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.17 | -- | 0.26 | 0.17 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.0001 | -- | <0.0001 | -- |
| Molybdenum, dissolved | mg/l | -- | -- | <0.00050 | -- | <0.0005 | -- |
| Nickel, dissolved | mg/l | -- | -- | 0.0031 | -- | 0.003 | -- |
| Potassium, dissolved | mg/l | -- | -- | 7.3 | -- | 8.6 | -- |
| Silicon, dissolved | mg/l | -- | -- | 10 | -- | 13 | -- |
| Silver, dissolved | mg/l | -- | -- | <0.00010 | -- | <0.0001 | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | 110 | 122 | 160 | 120 |
| Strontium, dissolved | mg/l | -- | -- | 0.19 | -- | 0.2 | -- |
| Sulfur, dissolved | mg/l | -- | -- | 1.6 | -- | 1.1 | -- |
| Thallium, dissolved | mg/l | -- | -- | <0.000050 | -- | <0.00005 | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | <0.0050 | -- | <0.005 | -- |
| Vanadium, dissolved | mg/l | -- | -- | 0.0027 | -- | 0.0042 | -- |
| Zinc, dissolved | mg/l | -- | 5 | 0.0065 | -- | <0.005 | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.0010 | -- | <0.0010 | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 699 | 666 | 692 | -- |
| Temperature (Field) | deg c | -- | 15 | 13.6 | 12.4 | 10.6 | -- |
| pH (Field) | - | -- | -- | 7.18 | 7.05 | 6.93 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|-------------|---------|-----------------|-------------|-------------|-----------------|
| | | ODWQS(169 | ODWQS- | 26-Aug-2014 (5) | 20-May-2015 | 17-Jun-2015 | 18-Aug-2015 (6) |
| | | /03)-Health | AO | G43-11 | 43 | 43 | G43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | -- | 490 | -- | -- |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | -- | 5.7 | -- | -- |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | -- | 12 | -- | -- |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | -- | 1100 | -- | -- |
| Chloride | mg/l | -- | 250 | -- | -- | -- | -- |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/l | -- | 5 | -- | 24 | 29 | -- |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | -- | 200 | -- | -- |
| Nitrate as N | mg/l | 10 | -- | -- | <0.10 | -- | -- |
| Nitrite as N | mg/l | 1.0 | -- | -- | 0.030 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | -- | 9.0 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | <0.10 | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | -- | 0.075 | -- | -- |
| Phosphorus | mg/l | -- | -- | -- | 14 | -- | -- |
| Sulphate | mg/l | -- | 500 (3) | -- | 2 | -- | -- |
| Total Dissolved Solids | mg/l | -- | 500 | -- | 930 | 760 | -- |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | -- | 0.032 | -- | -- |
| Barium, dissolved | mg/l | 1 | -- | -- | 0.024 | -- | -- |
| Beryllium, dissolved | mg/l | -- | -- | -- | <0.0005 | -- | -- |
| Boron, dissolved | mg/l | 5 | -- | -- | 0.48 | -- | -- |
| Cadmium, dissolved | mg/l | 0.005 | -- | -- | <0.0001 | -- | -- |
| Calcium, dissolved | mg/l | -- | -- | -- | 50 | -- | -- |
| Chromium, dissolved | mg/l | 0.05 | -- | -- | <0.005 | -- | -- |
| Cobalt, dissolved | mg/l | -- | -- | -- | <0.0005 | -- | -- |
| Copper, dissolved | mg/l | -- | 1 | -- | <0.001 | -- | -- |
| Iron, dissolved | mg/l | -- | 0.3 | -- | 2.2 | 3.0 | -- |
| Lead, dissolved | mg/l | 0.01 | -- | -- | <0.0005 | -- | -- |
| Magnesium, dissolved | mg/l | -- | -- | -- | 19 | -- | -- |
| Manganese, dissolved | mg/l | -- | 0.05 | -- | 0.15 | -- | -- |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | -- | <0.0001 | -- | -- |
| Molybdenum, dissolved | mg/l | -- | -- | -- | <0.0005 | -- | -- |
| Nickel, dissolved | mg/l | -- | -- | -- | 0.002 | -- | -- |
| Potassium, dissolved | mg/l | -- | -- | -- | 8.4 | -- | -- |
| Silicon, dissolved | mg/l | -- | -- | -- | 12 | -- | -- |
| Silver, dissolved | mg/l | -- | -- | -- | <0.0001 | -- | -- |
| Sodium, dissolved | mg/l | -- | 200 (4) | -- | 140 | 140 | -- |
| Strontium, dissolved | mg/l | -- | -- | -- | 0.21 | -- | -- |
| Sulfur, dissolved | mg/l | -- | -- | -- | 2.2 | -- | -- |
| Thallium, dissolved | mg/l | -- | -- | -- | <0.00005 | -- | -- |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | -- | <0.005 | -- | -- |
| Vanadium, dissolved | mg/l | -- | -- | -- | 0.0032 | -- | -- |
| Zinc, dissolved | mg/l | -- | 5 | -- | <0.005 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | -- | <0.0010 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | -- | 771 | 804 | -- |
| Temperature (Field) | deg c | -- | 15 | -- | 9.8 | 9.9 | -- |
| pH (Field) | - | -- | -- | -- | 6.91 | 7.01 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|-------------|---------|--------------|-------------|-------------|-------------|
| | | ODWQS(169 | ODWQS- | 16-June-2016 | 23-Aug-2016 | 01-May-2017 | 20-Sep-2017 |
| | | /03)-Health | AO | 43-11 | 43-11 | 43-11 | 43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 334 | 314 | 207 | 250 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 3.19 | 2.39 | 1.58 | 1.96 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 14 | 6 | < 3 | 6 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 476 | 382 | 255 | 455 |
| Chloride | mg/l | -- | 250 | 17 | 15.2 | 23.5 | 29.3 |
| Conductivity | µmho/c | -- | -- | -- | -- | -- | 625 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 35.8 | 28.7 | 18.8 | 58.4 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 151 | 164 | 150 | 200 |
| Nitrate as N | mg/l | 10 | -- | 0.3 | 0.2 | 0.16 | 0.1 |
| Nitrite as N | mg/l | 1.0 | -- | 0.2 | < 0.1 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 3.3 | 12.9 | 4.96 | 4.2 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.01 | 0.14 | 0.32 | 0.2 |
| Phosphorus | mg/l | -- | -- | 17 | 5.07 | 1.57 | 2.65 |
| Sulphate | mg/l | -- | 500 (3) | 3 | 12 | 29 | 8 |
| Total Dissolved Solids | mg/l | -- | 500 | 429 | 436 | 282 | 317 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.15 | 0.09 | 0.23 | 0.19 |
| Barium, dissolved | mg/l | 1 | -- | 0.027 | 0.024 | 0.021 | 0.039 |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 0.301 | 0.532 | 0.303 | 0.442 |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.00002 | < 0.00002 | < 0.000014 | < 0.000014 |
| Calcium, dissolved | mg/l | -- | -- | 35.3 | 41.3 | 36.9 | 48.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | < 0.002 | < 0.002 | 0.002 | 0.002 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0005 | 0.0003 | < 0.005 | < 0.005 |
| Copper, dissolved | mg/l | -- | 1 | < 0.002 | 0.002 | < 0.002 | < 0.002 |
| Iron, dissolved | mg/l | -- | 0.3 | 0.699 | 0.272 | 2.7 | 2.61 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00003 | 0.00008 | < 0.00002 | 0.00009 |
| Magnesium, dissolved | mg/l | -- | -- | 15.4 | 14.8 | 14.1 | 19.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.128 | 0.153 | 0.22 | 0.25 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0005 | 0.0003 | 0.0002 |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Potassium, dissolved | mg/l | -- | -- | 7.3 | 6.3 | 3.4 | 6.2 |
| Silicon, dissolved | mg/l | -- | -- | 8.11 | 9.04 | 5.57 | 8.38 |
| Silver, dissolved | mg/l | -- | -- | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 76.6 | 92.2 | 46 | 72.6 |
| Strontium, dissolved | mg/l | -- | -- | 0.187 | 0.18 | 0.172 | 0.235 |
| Sulfur, dissolved | mg/l | -- | -- | 1.3 | 4.5 | 11.6 | 3.9 |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | 0.006 | 0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0031 | 0.0042 | 0.0048 | 0.004 |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 774 | 685 | 592 | 532 |
| Temperature (Field) | deg c | -- | 15 | 11 | 8.5 | 5.8 | 11 |
| pH (Field) | - | -- | -- | 7.5 | 6.7 | 6.8 | 6.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) ODWQS(169 /03)-Health | (2) ODWQS- AO | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | |
|----------------------------------|--------|---------------------------------|---------------------|-------------|-------------|---------------|------------------|-----------------|----------------|-----------------|-----------------|--|
| | | | | 01-May-2018 | 21-Aug-2018 | 24-April-2019 | 25-Sept-2019 (6) | 26-May-2020 (6) | 4-Nov-2020 (6) | 27-May-2021 (6) | 18-Aug-2021 (6) | |
| | | | | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | G43-11 | |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 255 | 336 | 278 | Compromised | Compromised | Compromised | Compromised | Compromised | |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Ammonia Nitrogen | mg/l | -- | -- | 2.03 | 2.35 | 4.08 | -- | -- | -- | -- | -- | |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | < 3 | < 3 | < 3 | -- | -- | -- | -- | -- | |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chemical Oxygen Demand | mg/l | -- | -- | 370 | 1110 | 500 | -- | -- | -- | -- | -- | |
| Chloride | mg/l | -- | 250 | 41.4 | 35.8 | 35.7 | -- | -- | -- | -- | -- | |
| Conductivity | umho/c | -- | -- | 635 | 727 | 641 | -- | -- | -- | -- | -- | |
| Dissolved Organic Carbon | mg/l | -- | 5 | 49.1 | 42 | 47.8 | -- | -- | -- | -- | -- | |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 191 | 177 | 172 | -- | -- | -- | -- | -- | |
| Nitrate as N | mg/l | 10 | -- | < 0.05 | 0.14 | 0.07 | -- | -- | -- | -- | -- | |
| Nitrite as N | mg/l | 1.0 | -- | < 0.05 | < 0.05 | < 0.05 | -- | -- | -- | -- | -- | |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 12.6 | 28.4 | 19.2 | -- | -- | -- | -- | -- | |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphate, Ortho | mg/l | -- | -- | 0.33 | 0.03 | 3.98 | -- | -- | -- | -- | -- | |
| Phosphorus | mg/l | -- | -- | 4.72 | 28.5 | 14.6 | -- | -- | -- | -- | -- | |
| Sulphate | mg/l | -- | 500 (3) | 1 | 2 | 6 | -- | -- | -- | -- | -- | |
| Total Dissolved Solids | mg/l | -- | 500 | 346 | 410 | 353 | -- | -- | -- | -- | -- | |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Metals | | | | | | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.17 | 0.07 | 0.14 | -- | -- | -- | -- | -- | |
| Barium, dissolved | mg/l | 1 | -- | 0.036 | 0.028 | 0.028 | -- | -- | -- | -- | -- | |
| Beryllium, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | -- | -- | -- | -- | -- | |
| Boron, dissolved | mg/l | 5 | -- | 0.294 | 0.419 | 0.276 | -- | -- | -- | -- | -- | |
| Cadmium, dissolved | mg/l | 0.005 | -- | < 0.000015 | < 0.000015 | < 0.000015 | -- | -- | -- | -- | -- | |
| Calcium, dissolved | mg/l | -- | -- | 46.5 | 42.8 | 42 | -- | -- | -- | -- | -- | |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.002 | 0.001 | 0.001 | -- | -- | -- | -- | -- | |
| Cobalt, dissolved | mg/l | -- | -- | 0.001 | 0.0006 | 0.0007 | -- | -- | -- | -- | -- | |
| Copper, dissolved | mg/l | -- | 1 | 0.0006 | 0.0005 | 0.0029 | -- | -- | -- | -- | -- | |
| Iron, dissolved | mg/l | -- | 0.3 | 3.19 | 1.53 | 1.53 | -- | -- | -- | -- | -- | |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00009 | 0.00011 | 0.00031 | -- | -- | -- | -- | -- | |
| Magnesium, dissolved | mg/l | -- | -- | 18.3 | 17.1 | 16.4 | -- | -- | -- | -- | -- | |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.257 | 0.172 | 0.217 | -- | -- | -- | -- | -- | |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Mercury, dissolved | mg/l | 0.001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | -- | -- | -- | -- | -- | |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0002 | 0.0003 | 0.0002 | -- | -- | -- | -- | -- | |
| Nickel, dissolved | mg/l | -- | -- | < 0.01 | < 0.01 | 0.0041 | -- | -- | -- | -- | -- | |
| Potassium, dissolved | mg/l | -- | -- | 4.7 | 7.4 | 5.2 | -- | -- | -- | -- | -- | |
| Silicon, dissolved | mg/l | -- | -- | 7.58 | 8.51 | 6.51 | -- | -- | -- | -- | -- | |
| Silver, dissolved | mg/l | -- | -- | < 0.0001 | < 0.0001 | < 0.0001 | -- | -- | -- | -- | -- | |
| Sodium, dissolved | mg/l | -- | 200 (4) | 77.6 | 98.6 | 73.5 | -- | -- | -- | -- | -- | |
| Strontium, dissolved | mg/l | -- | -- | 0.231 | 0.198 | 0.209 | -- | -- | -- | -- | -- | |
| Sulfur, dissolved | mg/l | -- | -- | 1.6 | 1.6 | 2.8 | -- | -- | -- | -- | -- | |
| Thallium, dissolved | mg/l | -- | -- | < 0.00005 | < 0.00005 | < 0.00005 | -- | -- | -- | -- | -- | |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Titanium, dissolved | mg/l | -- | -- | < 0.005 | < 0.005 | < 0.005 | -- | -- | -- | -- | -- | |
| Vanadium, dissolved | mg/l | -- | -- | 0.0021 | 0.0019 | 0.0018 | -- | -- | -- | -- | -- | |
| Zinc, dissolved | mg/l | -- | 5 | < 0.005 | < 0.005 | 0.005 | -- | -- | -- | -- | -- | |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | < 0.001 | 0.012 | < 0.002 | -- | -- | -- | -- | -- | |
| Field Measurements | | | | | | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 543 | 611 | 862 | -- | -- | -- | -- | -- | |
| Temperature (Field) | deg c | -- | 15 | 5.7 | 10.1 | 5.5 | -- | -- | -- | -- | -- | |
| pH (Field) | - | -- | -- | 6.6 | 7.4 | 7.3 | -- | -- | -- | -- | -- | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | Unit | (1) | (2) | G43-11 | G43-11 | G43-11 | G43-11 |
|----------------------------------|--------|-------------|---------|----------------------------|-------------|------------|-----------|
| | | ODWQS(169 | ODWQS- | 31-May-2022 ⁽⁵⁾ | 28-Oct-2022 | 04-May-23 | 16-Aug-23 |
| | | /03)-Health | AO | G43-11 | G43-11 | G43-11 | G43-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/l | -- | 30-500 | 594 | 621 | 640 | 667 |
| Ammonia, unionized (Field) | mg/l | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/l | -- | -- | 1.25 | 1.92 | 0.66 | 1.28 |
| Bicarbonate | mg/l | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/l | -- | -- | 7 | 4 | 8 | 4 |
| Bromide | mg/l | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | mg/l | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/l | -- | -- | 979 | 812 | 95 | 349 |
| Chloride | mg/l | -- | 250 | 43.4 | 38.2 | 47.7 | 43.5 |
| Conductivity | µmho/c | -- | -- | -- | 1227 | 1288 | 1270 |
| Dissolved Organic Carbon | mg/l | -- | 5 | 22.3 | 41.8 | 41.1 | 35.8 |
| Fluoride | mg/l | 1.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/l | -- | 80-100 | 111 | 115 | 116 | 109 |
| Nitrate as N | mg/l | 10 | -- | 0.07 | < 0.05 | < 0.05 | <0.05 |
| Nitrite as N | mg/l | 1.0 | -- | <0.05 | < 0.05 | < 0.05 | 0.07 |
| Nitrogen, Total Kjeldahl | mg/l | -- | -- | 40.5 | 14.9 | 3.7 | 11.1 |
| Nitrogen, Nitrate-Nitrite | mg/l | 10.0 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/l | 0.15 | -- | -- | -- | -- | -- |
| Phosphate | mg/l | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | mg/l | -- | -- | 0.416 | 1.08 | 2.07 | 1.37 |
| Phosphorus | mg/l | -- | -- | 16.1 | 4.82 | 2.25 | 5.13 |
| Sulphate | mg/l | -- | 500 (3) | 31 | 17 | 11 | 6 |
| Total Dissolved Solids | mg/l | -- | 500 | 786 | 750 | 783 | 776 |
| Total Organic Carbon | mg/l | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | mg/l | -- | 0.1 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/l | -- | 0.1 | 0.09 | 0.35 | 0.02 | 0.02 |
| Barium, dissolved | mg/l | 1 | -- | 0.064 | 0.069 | 0.071 | 0.059 |
| Beryllium, dissolved | mg/l | -- | -- | <0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Boron, dissolved | mg/l | 5 | -- | 1.02 | 0.973 | 1.07 | 1.04 |
| Cadmium, dissolved | mg/l | 0.005 | -- | 0.000041 | 0.000015 | < 0.000012 | <0.000015 |
| Calcium, dissolved | mg/l | -- | -- | 23.3 | 23.8 | 21.5 | 20.3 |
| Chromium, dissolved | mg/l | 0.05 | -- | 0.004 | 0.002 | < 0.001 | 0.001 |
| Cobalt, dissolved | mg/l | -- | -- | 0.0008 | 0.0008 | 0.0006 | 0.0006 |
| Copper, dissolved | mg/l | -- | 1 | 0.0002 | 0.0033 | 0.0006 | 0.0004 |
| Iron, dissolved | mg/l | -- | 0.3 | 1.52 | 2.02 | 0.719 | 1.20 |
| Lead, dissolved | mg/l | 0.01 | -- | 0.00005 | 0.00024 | < 0.00004 | 0.00004 |
| Magnesium, dissolved | mg/l | -- | -- | 12.9 | 13.4 | 15.1 | 14.2 |
| Manganese, dissolved | mg/l | -- | 0.05 | 0.434 | 0.457 | 0.300 | 0.287 |
| Mercury | mg/l | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/l | 0.001 | -- | <0.00002 | < 0.00002 | < 0.00002 | <0.00002 |
| Molybdenum, dissolved | mg/l | -- | -- | 0.0265 | 0.011 | 0.0034 | 0.0020 |
| Nickel, dissolved | mg/l | -- | -- | 0.0049 | < 0.01 | < 0.01 | 0.0039 |
| Potassium, dissolved | mg/l | -- | -- | 9.5 | 9.9 | 9.9 | 10.3 |
| Silicon, dissolved | mg/l | -- | -- | 10.1 | 7.31 | 9.00 | 9.53 |
| Silver, dissolved | mg/l | -- | -- | <0.0001 | < 0.0001 | < 0.0001 | <0.0001 |
| Sodium, dissolved | mg/l | -- | 200 (4) | 306 | 270 | 292 | 278 |
| Strontium, dissolved | mg/l | -- | -- | 0.180 | 0.169 | 0.188 | 0.17 |
| Sulfur, dissolved | mg/l | -- | -- | 13.6 | 7.9 | 8.8 | 12.5 |
| Thallium, dissolved | mg/l | -- | -- | <0.00005 | < 0.00005 | < 0.00005 | <0.00005 |
| Tin, dissolved | mg/l | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | mg/l | -- | -- | 0.005 | 0.019 | < 0.005 | <0.005 |
| Vanadium, dissolved | mg/l | -- | -- | 0.0034 | 0.0035 | 0.0031 | 0.0042 |
| Zinc, dissolved | mg/l | -- | 5 | <0.005 | 0.007 | < 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/l | -- | -- | <0.001 | < 0.001 | < 0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Conductivity (Field) | uS/cm | -- | -- | 1360 | 1120 | 1430 | 1130 |
| Temperature (Field) | deg c | -- | 15 | 9.3 | 8.4 | 8.2 | 11.5 |
| pH (Field) | - | -- | -- | 8.01 | 7.95 | 7.93 | 7.83 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER QUALITY DATA

| Parameter | (2) (1) | (4) (3) | Field Blank | Field Blank | Field Blank | Field Blank | Field Blank |
|----------------------------------|----------------------------|------------------|-------------|-------------|-------------|-------------|-------------|
| | ODWQS - (169/03) Health | ODWQS AO | 02-May-2017 | 21-Sep-2017 | 06-Nov-2017 | 05-May-23 | 16-Aug-23 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | -- | -- | < 5 | < 5 | < 5 | < 5 | <5 |
| Ammonia, unionized (Field) | -- | -- | -- | -- | < 0.01 | -- | -- |
| Ammonia Nitrogen | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 | 0.33 |
| Bicarbonate | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | -- | -- | -- | -- | < 3 | -- | -- |
| Bromide | -- | -- | -- | -- | -- | -- | -- |
| Carbonate (CO3) | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | -- | -- | -- | -- | 8 | -- | -- |
| Chloride | -- | 250 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.5 |
| Chloride, dissolved | -- | 250 | -- | -- | -- | -- | -- |
| Conductivity | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | -- | 5 | 0.2 | < 0.2 | 0.6 | < 0.2 | 3 |
| Fluoride | 1.5 | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | -- | -- | < 1 | < 1 | < 1 | < 1 | 0.16 |
| Nitrate as N | 10 | -- | -- | -- | < 0.05 | -- | -- |
| Nitrite as N | 1 | -- | -- | -- | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | -- | -- | -- | -- | 0.1 | -- | -- |
| Nitrogen, Nitrate-Nitrite | 10 | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | -- | -- | -- | -- | -- | -- | -- |
| Phosphate | -- | -- | -- | -- | -- | -- | -- |
| Phosphate, Ortho | -- | -- | < 0.01 | < 0.01 | -- | 0.002 | <0.002 |
| Phosphorus | -- | -- | < 0.01 | < 0.01 | < 0.01 | < 0.01 | <0.01 |
| Phosphorus (dissolved reactive) | -- | -- | -- | -- | -- | -- | -- |
| Sulphate | -- | 500 ^m | -- | -- | < 1 | -- | -- |
| Sulphate, dissolved | -- | 500 ^m | -- | -- | -- | -- | -- |
| Total Dissolved Solids | -- | 500 | 1 | 1 | < 1 | -- | <3 |
| Total Organic Carbon | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum, total | 0.1 | -- | -- | -- | < 0.01 | -- | -- |
| Aluminum, dissolved | 0.1 | -- | -- | -- | < 0.01 | -- | -- |
| Barium, dissolved | 1 | -- | -- | -- | < 0.001 | -- | -- |
| Beryllium, dissolved | -- | -- | -- | -- | < 0.002 | -- | -- |
| Boron, dissolved | 5 | -- | < 0.005 | 0.008 | < 0.005 | 0.005 | 0.005 |
| Cadmium, dissolved | 0.005 | -- | -- | -- | < 0.000014 | -- | -- |
| Calcium, dissolved | -- | -- | -- | -- | 0.02 | < 0.02 | -- |
| Chromium, dissolved | 0.05 | -- | -- | -- | < 0.001 | -- | -- |
| Cobalt, dissolved | -- | -- | -- | -- | < 0.0001 | -- | -- |
| Copper, dissolved | -- | 1 | -- | -- | < 0.0001 | -- | -- |
| Iron, dissolved | -- | 0.3 | < 0.005 | 0.016 | < 0.005 | < 0.005 | 0.025 |
| Lead, dissolved | 0.01 | -- | -- | -- | < 0.00002 | -- | -- |
| Magnesium, dissolved | -- | -- | -- | -- | < 0.02 | < 0.02 | -- |
| Manganese, dissolved | -- | 0.05 | < 0.001 | 0.002 | < 0.001 | < 0.001 | 0.001 |
| Mercury | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | 0.001 | -- | -- | -- | < 0.00002 | -- | -- |
| Molybdenum, dissolved | -- | -- | -- | -- | < 0.0001 | -- | -- |
| Nickel, dissolved | -- | -- | -- | -- | 0.0002 | -- | -- |
| Potassium, dissolved | -- | -- | -- | -- | < 0.1 | -- | -- |
| Silicon, dissolved | -- | -- | -- | -- | < 0.01 | -- | -- |
| Silver, dissolved | -- | -- | -- | -- | < 0.00002 | -- | -- |
| Sodium, dissolved | -- | 200 ^m | -- | < 0.2 | < 0.2 | < 0.2 | <0.2 |
| Strontium, dissolved | -- | -- | -- | -- | < 0.001 | -- | -- |
| Sulfur, dissolved | -- | -- | -- | -- | < 0.1 | -- | -- |
| Thallium, dissolved | -- | -- | -- | -- | < 0.00005 | -- | -- |
| Tin, dissolved | -- | -- | -- | -- | -- | -- | -- |
| Titanium, dissolved | -- | -- | -- | -- | < 0.005 | -- | -- |
| Vanadium, dissolved | -- | -- | -- | -- | < 0.0001 | -- | -- |
| Zinc, dissolved | -- | 5 | -- | -- | < 0.005 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | -- | -- | -- | -- | < 0.001 | -- | -- |
| Field Measurements | | | | | | | |
| Conductivity (Field) | -- | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | -- | 15 | -- | -- | -- | -- | -- |
| pH (Field) | -- | -- | -- | -- | -- | -- | -- |

| | |
|-------------------|--|
| Footnotes: | |
| | Tables should be read in conjunction with the accompanying document. |
| < | Indicates parameter not detected above laboratory method detection limit. |
| > | Indicates parameter detected above equipment analytical range. |
| -- | Chemical not analyzed or criteria not defined. |
| Value | Parameter concentration greater than ODWQS(169/03)-Health |
| Value | Parameter concentration greater than ODWQS-AO |
| (2) | Ontario Drinking Water Quality Standards - Health Based Standards (June 2003, revised January 2020). |
| (1) | Ontario Drinking Water Quality Standards - Aesthetic Objectives. Aesthetic Objectives are established for parameters that may impair the taste, odour or colour of water or which may interfere with good water quality control practices. For certain parameters, both aesthetic objectives and health-related MACs have been derived (June 2003, revised June 2006). |
| (3) | There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L. |
| (4) | The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets. |
| (5) | Monitoring location has been destroyed and can no longer be sampled. |
| (6) | Monitoring location was dry during this sampling event. No sample was collected. |
| (7) | Insufficient water for sample collection or analysis at this monitoring location during sampling event. |
| (8) | Parameter was not measured. |
| (9) | Insufficient sample volume was collected for analysis. |
| (10) | Field Parameters were not measured |
| (11) | Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method. |
| (12) | Monitoring location was damaged and could not be sampled. |
| (13) | Metals: Due to high concentration of the target analyte, sample required dilution. Detection limit was adjusted accordingly. |
| (14) | Inoperable |
| (15) | Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. |
| (16) | Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly. |
| (17) | No result(s) available. |
| (18) | Sample bottle contained visible sediment. Sample was shaken to obtain representative aliquot. Results may be biased high due to analyte present in sediment. |
| (19) | Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly. |
| (20) | Sample IDs for G42-10 and G43-11 were reversed. |
| (21) | Nitrite/Nitrate: Due to the colour interferences, some sample required dilution. Detection limits were adjusted accordingly. |
| (22) | Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly. |
| (23) | Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. |
| (24) | Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (25) | VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly.Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. |
| (26) | VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (27) | Metal Analysis:RDLs of Chromium and Nickel were adjusted due to high concentrations of Carbon and Calcium respectively. |
| (28) | VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (29) | Metal Analysis:RDL of Nickel was adjusted due to high concentration of Calcium.VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (30) | Detection Limit was raised due to matrix interferences. |
| (31) | Metal analysis:Detection Limit was raised due to matrix interferences. |
| (32) | Location of duplicate sample not noted in field notes. Field technician indicated that the duplicate was taken at either P4-90 or 29-97. Based on comparison of sampling data from the parent samples at these locations on the same day, it appears that |
| (33) | Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (34) | VOC Analysis:Due to foaming sample required dilution. The DLs were adjusted accordingly. |
| (35) | TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent. |
| (36) | Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. |
| (37) | Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (38) | VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. |
| (39) | Hornets nest inside well casing; sample not collected |
| | Data prior to 2016 by others. Format from GAL 2015 |

APPENDIX H-3

VOCs Data

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (2) (1) | (4) (3) | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|--------------------------------|------|----------------------|----------|-------------|-------------|-------------|-------------|-------------|------------------|---------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 16-Jun-2016 | 23-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 26-Sept-2018 (7) | 25-April-2019 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | 0.1 | 0.2 | < 0.1 | 0.2 | 0.1 | -- | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | -- | < 0.1 | -- | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | -- | -- | -- | -- | -- | -- | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 0.1 | -- | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | 0.3 | 0.3 | < 0.2 | 0.4 | 0.5 | -- | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 1 | 2 | < 1 | 2 | < 1 | -- | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | 14 | 28 | 6 | 19 | < 2 | -- | < 30 |
| Benzene | ug/l | 1 | -- | 1.2 | 1.2 | 0.6 | 2.1 | 1.3 | -- | 0.8 |
| Bromodichloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 2 |
| Bromoform | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | -- | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | -- | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | < 0.2 | 0.3 | < 0.2 | 0.3 | 0.3 | -- | < 0.5 |
| Chloroform | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | -- | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | 0.1 | < 0.1 | < 0.1 | 0.1 | < 0.1 | -- | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 1 | < 1 | 1 | < 1 | < 1 | -- | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 0.3 | < 0.3 | < 0.3 | 0.6 | < 0.3 | -- | < 5 |
| n-Hexane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | -- | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | < 0.1 | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | < 0.2 | 0.3 | < 0.2 | -- | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromoflouorobenzene | % | -- | -- | -- | -- | 100 | 106 | 109 | -- | 106 |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | 95 | 100 | 69 | -- | 90 |
| D8-Toluene | % | -- | -- | -- | -- | 103 | 99 | 95 | -- | 110 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (2) (1) | (4) (3) | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 | P5B-91 |
|--------------------------------|------|----------------------|----------|--------------|----------------------------|------------|----------------------------|------------------|-------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 25-Sept-2019 | 27-May-2020 ⁽⁷⁾ | 5-Nov-2020 | 27-May-2021 ⁽⁷⁾ | 18-Aug-2021 (31) | 1-June-2022 | 28-Oct-2022 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | -- | -- |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.2 | -- | < 0.2 | -- | -- | < 0.5 | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.5 | -- | < 0.5 | -- | -- | 0.6 | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 20 | -- | < 20 | -- | -- | < 20 | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 30 | -- | < 30 | -- | -- | < 30 | < 30 |
| Benzene | ug/l | 1 | -- | 1.8 | -- | 0.9 | -- | -- | 1.9 | 1.5 |
| Bromodichloromethane | ug/l | -- | -- | < 2 | -- | < 2 | -- | -- | < 2 | < 2 |
| Bromoform | ug/l | -- | -- | < 5 | -- | < 5 | -- | -- | < 5 | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | -- | < 0.2 | -- | -- | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Chloroform | ug/l | -- | -- | < 1 | -- | < 1 | -- | -- | < 1 | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 2 | -- | < 2 | -- | -- | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 2 | -- | < 2 | -- | -- | < 2 | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 1.1 | -- | < 1.1 | -- | -- | < 1.1 | < 1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 1.0 | -- | < 1.0 | -- | -- | < 1.0 | < 1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 2 | -- | < 2 | -- | -- | < 2 | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 20 | -- | < 20 | -- | -- | < 20 | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 5 | -- | < 5 | -- | -- | < 5 | < 5 |
| n-Hexane | ug/l | -- | -- | < 5 | -- | < 5 | -- | -- | < 5 | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | -- | < 0.5 | -- | -- | < 0.5 | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 5 | -- | < 5 | -- | -- | < 5 | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | -- | < 0.2 | -- | -- | < 0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D8-Toluene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (4) (1) | (4) (3) | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
|--------------------------------|------|---------------|----------|-------------|-------------|-------------|-------------|-------------|------------------|---------------|
| | | ODWQS(169/03) | ODWQS-AO | 17-Jun-2016 | 23-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 26-Sept-2018 (7) | 25-April-2019 |
| | |)-Health | | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 | P1-91 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | 0.2 | < 0.1 | < 0.1 | 0.2 | 0.2 | -- | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | -- | < 0.1 | -- | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | -- | -- | -- | -- | -- | -- | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | 0.1 | 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | -- | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 1 | < 1 | 2 | < 1 | < 1 | -- | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | 8 | 12 | 14 | 8 | < 2 | -- | < 30 |
| Benzene | ug/l | 1 | -- | 1.3 | 1.5 | < 0.5 | 1.6 | 1.2 | -- | 1.3 |
| Bromodichloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 2 |
| Bromoform | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | -- | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | -- | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | 0.2 | 0.3 | < 0.2 | 0.3 | 0.3 | -- | < 0.5 |
| Chloroform | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | -- | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | -- | < 1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 1 | < 1 | 1 | < 1 | 2 | -- | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 0.3 | < 0.3 | < 0.3 | 0.4 | < 0.3 | -- | < 5 |
| n-Hexane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | -- | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | -- | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | < 0.1 | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | -- | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | 0.2 | 0.3 | < 0.2 | 0.4 | 0.2 | -- | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | 99 | 105 | 108 | -- | 105 |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | 95 | 99 | 67 | -- | 94.4 |
| D8-Toluene | % | -- | -- | -- | -- | 103 | 99 | 95 | -- | 115 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (2) (1) | (4) (3) | P1-91 | P1-91 | P1-91 | Dup | P1-91 | Dup | RPD |
|--------------------------------|------|----------------------|----------|--------------|-------------|------------|------------|-----------|-----------|-------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 25-Sept-2019 | 27-May-2020 | 5-Nov-2020 | 5-Nov-2020 | 27-May-21 | 27-May-21 | |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Trichloroethylene | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,1-Dichloroethylene | ug/l | 14 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | NC |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | NC |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | NC |
| Benzene | ug/l | 1 | -- | 1.5 | 1.4 | 0.5 | 0.5 | 1.7 | 1.8 | 5.71% |
| Bromodichloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | NC |
| Bromoform | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | NC |
| Bromomethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | NC |
| Chlorobenzene | ug/l | 80 | 30 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Chloroform | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | NC |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | NC |
| Dichlorodifluoromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | NC |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Xylene, m,p,o- | ug/l | -- | -- | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | NC |
| m,p-Xylenes | ug/l | -- | -- | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | NC |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | NC |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | NC |
| Methylene Chloride | ug/l | 50 | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | NC |
| n-Hexane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | NC |
| o-Xylene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Dichloroethene, 1,1- | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | NC |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | NC |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D8-Toluene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (2) (1) | (4) (3) | P1-91 | Dup | P1-91 | P1-91 | RPD | P1-91 | P1-91 |
|--------------------------------|------|----------------------|----------|-----------|-----------|-----------|-------------|-------|------------|-------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 18-Aug-21 | 18-Aug-21 | 1-June-22 | 28-Oct-2022 | | 5-May-2023 | 16-Aug-2023 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | -- | -- | -- | <0.5 | <0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.2 | < 0.2 | < 0.5 | < 0.2 | NC | < 0.5 | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | NC | < 20 | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 30 | < 30 | < 30 | < 30 | NC | < 30 | < 30 |
| Benzene | ug/l | 1 | -- | 1.6 | 1.7 | 2 | 0.9 | 6.06% | <0.5 | 1.6 |
| Bromodichloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | NC | < 2 | < 2 |
| Bromoform | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | NC | < 5 | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | NC | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | < 1 | < 1 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Chloroform | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | NC | < 1 | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | NC | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | NC | < 2 | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 1.1 | < 1.1 | < 1.1 | < 1.1 | NC | < 1.1 | < 1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 1.0 | < 1.0 | < 1.0 | < 1.0 | NC | < 1.0 | < 1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | NC | < 2 | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | NC | < 20 | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 5 | < 5 | < 5 | < 5 | NC | < 5 | < 5 |
| n-Hexane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | NC | < 5 | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | NC | < 0.5 | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 5 | < 5 | NC | < 5 | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | 0.3 | < 0.2 | NC | <0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D8-Toluene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (4) (1) | (4) (3) | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 |
|--------------------------------|------|----------------------|----------|-------------|-------------|-------------|-------------|-------------|---------------|--------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 17-Jun-2016 | 23-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 25-April-2019 | 25-Sept-2019 |
| | | | | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | 0.3 | 0.2 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | 0.2 | 0.2 | < 0.1 | 0.3 | 0.3 | < 0.5 | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | -- | < 0.1 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | -- | -- | -- | -- | -- | < 0.5 | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | 14.9 | 5.1 | 7.3 | 4.8 | 2.2 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 1 | < 1 | 6 | < 1 | < 1 | < 20 | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | 8 | 9 | 24 | 9 | < 2 | < 30 | < 30 |
| Benzene | ug/l | 1 | -- | 1.8 | 4.2 | < 0.5 | 2.8 | 2.1 | 1.8 | 4.4 |
| Bromodichloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 |
| Bromoform | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | 0.6 | 1 | < 0.2 | 1.4 | 1.1 | 0.8 | 2.4 |
| Chloroform | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 1 | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 2 | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 0.4 | 1 | < 0.4 | 1.5 | < 0.4 | < 1.1 | 5.5 |
| m,p-Xylenes | ug/l | -- | -- | < 0.4 | 0.7 | < 0.4 | 1 | < 0.4 | < 1.0 | 3.1 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 1 | < 1 | 2 | 2 | 3 | < 2 | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 20 | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 0.3 | < 0.3 | < 0.3 | 0.5 | < 0.3 | < 5 | < 5 |
| n-Hexane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 5 | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.1 | 0.3 | < 0.1 | 0.5 | < 0.1 | < 0.5 | 2.4 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.5 |
| Toluene | ug/l | 60 | 24 | 0.6 | 0.9 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.6 |
| Dichloroethene, 1,1- | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | -- |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.5 | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | < 0.1 | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 5 | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | < 0.2 | 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | 100 | 106 | 108 | 117 | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | 95 | 102 | 66 | 72.3 | -- |
| D8-Toluene | % | -- | -- | -- | -- | 103 | 99 | 94 | 97.3 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (4) (1) | (4) (3) | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 | P6-91 |
|--------------------------------|------|----------------------|----------|-------------|------------|-------------|-------------|-------------|-------------|------------|
| | | ODWQS(169/03)-Health | ODWQS-AO | 27-May-2020 | 5-Nov-2020 | 27-May-2021 | 18-Aug-2021 | 1-June-2022 | 28-Oct-2022 | 5-May-2023 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | -- | < 0.5 | < 0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.5 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | < 0.5 | < 0.5 | < 0.5 |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | 0.7 | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| Benzene | ug/l | 1 | -- | 2.5 | 0.5 | 1.4 | 2.9 | 3.1 | 0.8 | <0.5 |
| Bromodichloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromoform | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | 1.1 | 1.1 | 1 | 1.1 | 0.9 | 1.4 | <0.5 |
| Chloroform | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | 1.1 | 1.1 | 2.1 | 1.1 | 1.7 | 3.2 | <1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 1.0 | < 1.0 | < 1.0 | < 1.0 | 1.1 | 2.2 | <1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| n-Hexane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.6 | 0.9 | <0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | -- | -- | -- | -- | -- | < 0.5 | < 0.5 |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | 0.3 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| D8-Toluene | % | -- | -- | -- | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

| Parameter | Unit | (2) (1) | (4) (3) | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank |
|--------------------------------|------|----------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| | | ODWQS(169/03)- | ODWQS-AO | 17-Jun-2016 | 23-Aug-2016 | 02-May-2017 | 21-Sep-2017 | 01-May-2018 | 21-Aug-2018 | 26-Sept-2018 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloroethylene | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | -- | < 0.1 | < 0.1 | < 0.1 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Benzene | ug/l | 1 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromoform | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Bromomethane | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chloroform | ug/l | -- | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| m,p-Xylenes | ug/l | -- | -- | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 | < 0.4 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Methylene Chloride | ug/l | 50 | -- | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 | < 0.3 |
| n-Hexane | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| o-Xylene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | < 0.1 | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | -- | -- | 100 | 106 | 108 | 104 | -- |
| D4-1,2-Dichloroethane | % | -- | -- | -- | -- | 95 | 101 | 69 | 104 | -- |
| D8-Toluene | % | -- | -- | -- | -- | 103 | 99 | 96 | 99 | -- |

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| Parameter | Unit | (2) (1) | (4) (3) | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank | Trip Blank |
|--------------------------------|------|----------------|----------|---------------|--------------|-------------|-------------|------------|------------|-------------|
| | | ODWQS(169/03)- | ODWQS-AO | 25-April-2019 | 25-Sept-2019 | 27-May-2021 | 18-Aug-2021 | 01-Jun-22 | 5-May-2023 | 16-Aug-2023 |
| Semi-VOCs | | | | | | | | | | |
| 4-Methyl-2-pentanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Hydroxide | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Styrene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| VOCs | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,1-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2,2-Tetrachloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1,2-Trichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethylene | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,1-Dichloroethylene | ug/l | 14 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dibromoethane | ug/l | -- | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| 1,2-Dichlorobenzene | ug/l | 200 | 3 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloroethane | ug/l | 5 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,2-Dichloropropane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichlorobenzene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3,5-Trimethylbenzene | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| 1,3-Dichloropropene, Total | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | ug/l | 5 | 1 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Methyl Ethyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| 2-Hexanone | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Acetone | ug/l | -- | -- | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 | < 30 |
| Benzene | ug/l | 1 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Bromodichloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Bromoform | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Bromomethane | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Carbon Tetrachloride | ug/l | 2 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Chlorobenzene | ug/l | 80 | 30 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloroform | ug/l | -- | -- | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 | < 1 |
| Chloroethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| cis-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| cis-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Chloromethane | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dibromochloromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Dichlorodifluoromethane | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Ethylbenzene | ug/l | 140 | 2.4 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Xylene, m,p,o- | ug/l | -- | -- | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 |
| m,p-Xylenes | ug/l | -- | -- | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Methyl tert-Butyl Ether | ug/l | -- | -- | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| Methyl Isobutyl Ketone | ug/l | -- | -- | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 | < 20 |
| Methylene Chloride | ug/l | 50 | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| n-Hexane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| o-Xylene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Tetrachloroethylene | ug/l | 10 | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Toluene | ug/l | 60 | 24 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Dichloroethene, 1,1- | ug/l | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| trans-1,3-Dichloropropene | ug/l | -- | -- | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Trichloroethene | ug/l | 5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichlorofluoromethane | ug/l | -- | -- | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 | < 5 |
| Vinyl Chloride | ug/l | 1 | -- | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 |
| Xylenes, Total | ug/l | 90 | 300 | -- | -- | -- | -- | -- | -- | -- |
| Surrogate Recovery (%) | | | | | | | | | | |
| 4-Bromofluorobenzene | % | -- | -- | 115 | -- | -- | -- | -- | -- | -- |
| D4-1,2-Dichloroethane | % | -- | -- | 78.4 | -- | -- | -- | -- | -- | -- |
| D8-Toluene | % | -- | -- | 95.6 | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
GROUNDWATER VOC DATA

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| Footnotes: |
| Tables should be read in conjunction with the accompanying document. |
| < value = Indicates parameter not detected above laboratory method detection limit. |
| > value = Indicates parameter detected above equipment analytical range. |
| -- Chemical not analyzed or criteria not defined. |
| Grey background indicates exceedances. |
| (1) Ontario Drinking Water Quality Standards - Health Based Standards (June 2003, revised January 2020). |
| (2) Bold Font = Parameter concentration greater than ODWQS(169/03)-Health |
| (3) Ontario Drinking Water Quality Standards - Aesthetic Objectives. Aesthetic Objectives are established for parameters that may impair the taste, odour or colour of water or which may interfere with good water quality control practices. For certain parameters, both aesthetic objectives and health-related MACs have been derived (June 2003, revised June 2006). |
| (4) Underlined Font = Parameter concentration greater than ODWQS-AO |
| (5) No sample was collected. |
| (6) Monitoring location has been destroyed and can no longer be sampled. |
| (7) Monitoring location was dry during this sampling event. No sample was collected. |
| (8) Insufficient water for sample collection or analysis at this monitoring location during sampling event. |
| (9) Insufficient sample volume was collected for analysis. |
| (10) Field Parameters were not measured |
| (11) Monitoring location was damaged and could not be sampled. |
| (12) Metals: Due to high concentration of the target analyte, sample required dilution. Detection limit was adjusted accordingly. |
| (13) Inoperable |
| (14) Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. |
| (15) Sample IDs for G42-10 and G43-11 were reversed. |
| (16) Nitrite/Nitrate: Due to the colour interferences, some sample required dilution. Detection limits were adjusted accordingly. |
| (17) Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly. |
| (18) Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (19) VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly.Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly. |
| (20) VOC Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (21) Metal Analysis:RDLs of Chromium and Nickel were adjusted due to high concentrations of Carbon and Calcium respectively. |
| (22) VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (23) Metal Analysis:RDL of Nickel was adjusted due to high concentration of Calcium.VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (24) Location of duplicate sample not noted in field notes. Field technician indicated that the duplicate was taken at either P4-90 or 29-97. Based on comparison of sampling data from the parent samples at these locations on the same day, it appears that the duplicate sample was taken at P4-90. |
| (25) Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (26) VOC Analysis:Due to foaming sample required dilution. The DLs were adjusted accordingly. |
| (27) VOC Analysis:The detection limits was raised due to decrease instrument sensitivity. |
| (28) Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. |
| (29) Metals: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.VOC Water Analysis: Due to foaming, sample required dilution. The detection limits were adjusted accordingly. |
| (30) VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. |
| (31) Hornets nest in well casing; no sample aquired |

APPENDIX H-4

Scale House Data (Domestic Well)

| Parameter | Units | Type | ODWS | Scale House 21-Sep-20 | Scale House 28-Oct-22 | Scale House 05-May-23 | Scale House 16-Aug-23 |
|----------------------------|-----------|--------|--------|--------------------------|--------------------------|--------------------------|--------------------------|
| Hardness (as CaCO3) | mg/L | OG | 80-100 | 9 | 8 | 8 | 7.95 |
| Alkalinity(CaCO3) to pH4.5 | mg/L | OG | 500 | 375 | 386 | 391 | 399 |
| TDS(ion sum calc.) | mg/L | AO | 500 | 577 | 563 | 597 | 568 |
| Chloride | mg/L | AO | 250 | 95.1 | 89.6 | 105 | 95.1 |
| Nitrite (N) | mg/L | MAC | 1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrate (N) | mg/L | MAC | 10 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Sulphate | mg/L | AO | 500 | < 1 | < 1 | < 1 | < 1 |
| Calcium | mg/L | | | 1.34 | 1.15 | 1.17 | 1.11 |
| Magnesium | mg/L | | | 1.37 | 1.28 | 1.35 | 1.26 |
| Sodium | mg/L | AO/MAC | 200/20 | 249 | 233 | 250 | 226 |
| Potassium | mg/L | | | 4.7 | 4.7 | 4.6 | 4.4 |
| Aluminum | mg/L | OG | 0.1 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Barium | mg/L | MAC | 1 | 0.08 | 0.072 | 0.097 | 0.076 |
| Beryllium | mg/L | | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | mg/L | IMAC | 5 | 0.987 | 0.958 | 1.02 | 0.954 |
| Cadmium | mg/L | MAC | 0.005 | < 0.000015 | < 0.000010 | < 0.000010 | < 0.000015 |
| Chromium | mg/L | MAC | 0.05 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Cobalt | mg/L | | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Copper | mg/L | AO | 1 | 0.0024 | 0.0005 | 0.0012 | 0.0006 |
| Iron | mg/L | AO | 0.3 | 0.576 | 0.145 | 0.274 | 0.199 |
| Lead | mg/L | MAC | 0.01 | 0.00019 | 0.00004 | 0.00013 | 0.00005 |
| Manganese | mg/L | AO | 0.05 | 0.019 | 0.008 | 0.007 | 0.006 |
| Mercury | mg/L | MAC | 0.001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | | | 0.0009 | 0.0008 | 0.0008 | 0.0008 |
| Nickel | mg/L | | | 0.0004 | < 0.01 | < 0.01 | 0.0003 |
| Silicon | mg/L | | | 2.74 | 2.19 | 2.65 | 2.79 |
| Silver | mg/L | | | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Strontium | mg/L | | | 0.086 | 0.081 | 0.091 | 0.081 |
| Sulphur | mg/L | | | 0.1 | 0.1 | 0.2 | 0.20 |
| Thallium | mg/L | | | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Titanium | mg/L | | | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium | mg/L | | | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| Zinc | mg/L | AO | 5 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Ammonia (N)-Total | mg/L | | | 0.35 | 0.18 | 0.11 | 0.19 |
| Total Kjeldahl Nitrogen | mg/L | | | 0.7 | 0.8 | 0.8 | 0.7 |
| o-Phosphate (P) | mg/L | | | 0.466 | 0.441 | 0.417 | 0.425 |
| Phosphorus-Total | mg/L | | | 0.51 | 0.49 | 0.48 | 0.52 |
| Phenolics | mg/L | | | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| BOD(5 day) | mg/L | | | 17 | < 3 | 12 | 12 |
| COD | mg/L | | | 14 | 12 | 17 | 16 |
| Dissolved Organic Carbon | mg/L | AO | 5 | 6.1 | 2.3 | 4.2 | 4.4 |
| Conductivity (calc.) | µmho/cm | | | 1005 | 972 | 1038 | 980 |
| Bacteria | | | | | | | |
| Total Coliform | cfu/100mL | MAC | 0 | 0 | -- | -- | -- |
| E coli | cfu/100mL | MAC | 0 | 0 | -- | -- | -- |

Notes:

Bold Exceeds ODWS

MAC = Maximum Acceptable Concentration

IMAC = Interim Maximum Acceptable

Concentration

OG = Operational Guideline

AO = Aesthetic Objective

| Parameter | Units | Type | ODWS | Scale House 21-Sep-20 | Scale House 28-Oct-22 | Scale House 05-May-23 | Scale House 16-Aug-23 |
|---|-------|------|------|--------------------------|--------------------------|--------------------------|--------------------------|
| Volatile Organic Compounds | | | | | | | |
| Acetone | µg/L | | | < 30 | -- | -- | -- |
| Benzene | µg/L | MAC | 5 | < 0.5 | -- | -- | -- |
| Bromodichloromethane | µg/L | | | < 2 | -- | -- | -- |
| Bromoform | µg/L | | | < 5 | -- | -- | -- |
| Bromomethane | µg/L | | | 1.1 | -- | -- | -- |
| Carbon Tetrachloride | µg/L | MAC | 5 | < 0.2 | -- | -- | -- |
| Monochlorobenzene (Chlorobenzene) | µg/L | MAC | 80 | < 0.5 | -- | -- | -- |
| Chloroform | µg/L | | | < 1 | -- | -- | -- |
| Dibromochloromethane | µg/L | | | < 2 | -- | -- | -- |
| Dichlorobenzene,1,2- | µg/L | MAC | 200 | < 0.5 | -- | -- | -- |
| Dichlorobenzene,1,3- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichlorobenzene,1,4- | µg/L | MAC | 5 | < 0.5 | -- | -- | -- |
| Dichlorodifluoromethane | µg/L | | | < 2 | -- | -- | -- |
| Dichloroethane,1,1- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloroethane,1,2- | µg/L | IMAC | 0.5 | < 0.5 | -- | -- | -- |
| Dichloroethylene,1,1- | µg/L | MAC | 14 | < 0.5 | -- | -- | -- |
| Dichloroethene, cis-1,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloroethene, trans-1,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloropropane,1,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloropropene, cis-1,3- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloropropene, trans-1,3- | µg/L | | | < 0.5 | -- | -- | -- |
| Dichloropropene 1,3- cis+trans | µg/L | | | < 0.5 | -- | -- | -- |
| Ethylbenzene | µg/L | AO | 1.6 | < 0.5 | -- | -- | -- |
| Dibromoethane,1,2- (Ethylene Dibromide) | µg/L | | | < 0.2 | -- | -- | -- |
| Hexane | µg/L | | | < 5 | -- | -- | -- |
| Methyl Ethyl Ketone | µg/L | | | < 20 | -- | -- | -- |
| Methyl Isobutyl Ketone | µg/L | | | < 20 | -- | -- | -- |
| Methyl-t-butyl Ether | µg/L | | | < 2 | -- | -- | -- |
| Dichloromethane (Methylene Chloride) | µg/L | MAC | 5 | < 5 | -- | -- | -- |
| Styrene | µg/L | | | < 0.5 | -- | -- | -- |
| Tetrachloroethane,1,1,1,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Tetrachloroethane,1,1,2,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Tetrachloroethylene | µg/L | MAC | 30 | < 0.5 | -- | -- | -- |
| Toluene | µg/L | AO | 24 | < 0.5 | -- | -- | -- |
| Trichloroethane,1,1,1- | µg/L | | | < 0.5 | -- | -- | -- |
| Trichloroethane,1,1,2- | µg/L | | | < 0.5 | -- | -- | -- |
| Trichloroethylene | µg/L | MAC | 5 | < 0.5 | -- | -- | -- |
| Trichlorofluoromethane | µg/L | | | < 5 | -- | -- | -- |
| Vinyl Chloride | µg/L | MAC | 2 | < 0.2 | -- | -- | -- |
| Xylene, m,p- | µg/L | | | < 1.0 | -- | -- | -- |
| Xylene, o- | µg/L | | | < 0.5 | -- | -- | -- |
| Xylene, m,p,o- | µg/L | | | < 1.1 | -- | -- | -- |

Notes:

- Red** Exceeds ODWS
- MAC = Maximum Acceptable Concentration
- IMAC = Interim Maximum Acceptable Concentration
- OG = Operational Guideline
- AO = Aesthetic Objective

APPENDIX I

Surface Water Concentrations

I-1: 2023 Inorganic Data

I-2: Historical Inorganic Data (PDF Only)

APPENDIX I-1
2023 Inorganic Data

| Parameter | Unit (< June 2016) | (a) PWQO | Unit (June 2016+) | (b) PWQO | Background | Background | Background | Ambient Conditions | Ambient Conditions | Ambient Conditions | Ambient Conditions | Ambient Conditions |
|----------------------------------|-----------------------|-------------------------|----------------------|-----------------------------|----------------|----------------|----------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | Western Stream | Western Stream | Western Stream | Western Ditch | Western Ditch | Western Ditch | Western Ditch | Western Ditch |
| | | | | | GS6 | GS6 | GS6 | S1 | S1 | S1 | S2 | S2 |
| | | | | | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 |
| | | | | | GS-6 | GS-6 | GS-6 | S-1 | S-1 | S-1 | S-2 | S-2 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 48 | 96 | 119 | 54 | 101 | 135 | 49 | 105 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | 0.0005 | <0.05 | < 0.01 | <0.01 | <0.01 | < 0.01 | <0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | < 0.01 | 0.07 | <0.05 | < 0.01 | <0.05 | <0.05 | < 0.01 | 0.06 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 5 | <3 | <3 | -- | -- | -- | 3 | 4 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 41 | 46 | 16 | -- | -- | -- | 49 | 93 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 13.6 | 18.1 | 24.7 | 22.2 | 24.6 | 43.1 | 18.4 | 39.3 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | 363 | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 23.5 | 19.9 | 5.5 | 30.2 | 22.3 | 5.1 | 15.6 | 34.0 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 68 | 117 | 145 | 66 | 115 | 156 | 60 | 116 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1.53 | 0.94 | 1.59 | -- | -- | -- | 1.57 | 0.56 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | <0.05 | <0.05 | -- | -- | -- | < 0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.5 | 0.6 | 0.3 | -- | -- | -- | 0.9 | 0.9 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.02 | 0.04 | 0.04 | 0.06 | 0.04 | 0.04 | 0.14 | 0.08 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 12 | 13 | 22 | -- | -- | -- | 9 | 13 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 84 | 138 | 174 | 96 | 153 | 214 | 87 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.44 | 0.27 | 0.15 | -- | -- | -- | 1.99 | 0.33 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.24 | 0.14 | 0.04 | -- | -- | -- | 0.18 | 0.13 |
| Barium | ug/l | -- | mg/L | -- | 0.018 | 0.032 | 0.035 | -- | -- | -- | 0.028 | 0.029 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | <0.0001 | <0.0001 | -- | -- | -- | < 0.0001 | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.006 | 0.012 | 0.010 | 0.008 | 0.011 | 0.028 | 0.009 | 0.014 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000036 | 0.000029 | <0.000015 | -- | -- | -- | < 0.000015 | 0.000027 |
| Calcium | ug/l | -- | mg/L | -- | 16.7 | 32.9 | 40.9 | 17.6 | -- | 43.1 | 15.3 | 32.5 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.002 | -- | -- | -- | -- | -- | 0.006 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0006 | 0.0003 | 0.0002 | -- | -- | -- | 0.0013 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.002 | 0.0015 | 0.0013 | -- | -- | -- | 0.0041 | 0.0023 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.732 | 1.49 | 0.557 | 1.09 | 1.01 | 0.932 | 2.17 | 1.36 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00055 | 0.00028 | 0.00009 | -- | -- | -- | 0.00134 | 0.00027 |
| Magnesium | ug/l | -- | mg/L | -- | 4.78 | 8.36 | 10.5 | 5.27 | -- | 11.8 | 4.93 | 8.47 |
| Manganese | ug/l | -- | mg/L | -- | 0.075 | 0.090 | 0.066 | 0.067 | 0.067 | 0.079 | 0.066 | 0.060 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | <0.00002 | -- | -- | -- | < 0.00002 | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.002 | -- | -- | -- | -- | -- | 0.0002 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.001 | 0.0016 | 0.0007 | -- | -- | -- | 0.0034 | 0.0019 |
| Potassium | ug/l | -- | mg/L | -- | 1.0 | 1.0 | 1.8 | -- | -- | -- | 1.6 | 1.7 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 3.59 | 6.12 | 7.03 | -- | -- | -- | 5.80 | 5.99 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | <0.0001 | <0.0001 | -- | -- | -- | < 0.0001 | <0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 6.2 | 10.6 | 13.0 | 12.1 | 14.0 | 23.7 | 10.5 | 21.3 |
| Strontium | ug/l | -- | mg/L | -- | 0.066 | 0.117 | 0.165 | -- | -- | -- | 0.064 | 0.120 |
| Sulfur | ug/l | -- | mg/L | -- | 2.8 | 4.76 | 8.23 | -- | -- | -- | 2.3 | 4.15 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | <0.00005 | <0.00005 | -- | -- | -- | < 0.00005 | <0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.017 | 0.011 | 0.007 | -- | -- | -- | 0.110 | 0.015 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0015 | 0.0012 | 0.0008 | -- | -- | -- | 0.0049 | 0.0016 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | 0.007 | 0.005 | -- | -- | -- | 0.013 | <0.005 |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | <0.001 | <0.001 | -- | -- | -- | < 0.001 | <0.001 |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8.3 | 15.5 | -- | 8.7 | 12.5 | -- | 7.0 | 15.0 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 210 | 546 | 313 | 250 | 264 | 384 | 350 | 310 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.43 | 7.23 | 8.13 | 7.56 | 7.80 | 7.90 | 7.64 | 7.66 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 9.0 | 16.9 | 15.0 | 8.6 | 16.8 | 13.0 | 7.6 | 16.9 |

| Parameter | Unit (< June 2016) | Unit (June 2016+) | Unit (June 2016+) | Unit (June 2016+) | Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: Ambient Conditions: | | | | | | | | | | | | | |
|----------------------------------|-----------------------|-------------------------|----------------------|-----------------------------|---|--------------|---------------|--------------|---------------|-------------|---------------|--------------|---------------|-------|---------------|--|---------------|--|
| | | | | | Western Ditch | | Western Ditch | | Western Ditch | | Western Ditch | | Western Ditch | | Western Ditch | | Western Ditch | |
| | | | | | S2 | GS8 | GS8 | GS8 | GS17 | GS17 | GS17 | GS17 | GS22 | GS22 | | | | |
| | | | | | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | | | | | |
| | | | | | S-2 | S-8 | S-8 | S-8 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | | | | |
| | | | | | DRY | | | | | | | | | | | | | |
| General Chemistry | | | | | | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 159 | 51 | 113 | 161 | 55 | 118 | -- | 53 | 119 | | | | | |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <0.01 | 0.0001 | 0.0004 | <0.01 | < 0.01 | 0.0011 | -- | < 0.01 | 0.0016 | | | | | |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <0.05 | 0.01 | 0.06 | <0.05 | < 0.01 | 0.08 | -- | < 0.01 | 0.07 | | | | | |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | -- | -- | -- | < 3 | <3 | -- | < 3 | <3 | | | | | |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 16 | -- | -- | -- | 41 | 57 | -- | 40 | 59 | | | | | |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 38.2 | 16.4 | 35.7 | 33.9 | 22.2 | 84.1 | -- | 15.6 | 85.0 | | | | | |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Conductivity | umho/cm | -- | umho/cm | -- | 450 | -- | 341 | -- | -- | -- | -- | -- | -- | | | | | |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 14.2 | 24.4 | 25.6 | 3.8 | 23.8 | 27.0 | -- | 26.1 | 27.4 | | | | | |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 162 | 61 | 121 | 165 | 66 | 126 | -- | 68 | 116 | | | | | |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1.03 | -- | -- | -- | 1.15 | 0.05 | -- | 1.70 | 0.07 | | | | | |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <0.05 | -- | -- | -- | < 0.05 | <0.05 | -- | < 0.05 | <0.05 | | | | | |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.3 | -- | -- | -- | 0.7 | 0.8 | -- | 0.4 | 0.8 | | | | | |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.05 | 0.21 | 0.06 | 0.06 | 0.06 | 0.09 | -- | 0.04 | 0.08 | | | | | |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 25 | -- | -- | -- | 10 | 7 | -- | 12 | 7 | | | | | |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 227 | 86 | 175 | 225 | 97 | 254 | -- | 90 | 253 | | | | | |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Metals | | | | | | | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.27 | -- | -- | -- | 0.85 | 0.87 | -- | 0.53 | 0.43 | | | | | |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | -- | -- | -- | 0.23 | 0.12 | -- | 0.22 | 0.13 | | | | | |
| Barium | ug/l | -- | mg/L | -- | 0.030 | -- | -- | -- | 0.020 | 0.030 | -- | 0.019 | 0.025 | | | | | |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.0001 | -- | -- | -- | < 0.0001 | <0.0001 | -- | < 0.0001 | <0.0001 | | | | | |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.021 | 0.009 | 0.016 | 0.016 | 0.007 | 0.013 | -- | 0.007 | 0.011 | | | | | |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | -- | -- | -- | 0.000035 | 0.000028 | -- | 0.000034 | 0.000017 | | | | | |
| Calcium | ug/l | -- | mg/L | -- | 45.3 | 16.5 | -- | 45.9 | 16.6 | 34.9 | -- | 17.8 | 32.6 | | | | | |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | 0.003 | -- | -- | 0.002 | -- | | | | | |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0004 | -- | -- | -- | 0.0007 | 0.0005 | -- | 0.0006 | 0.0003 | | | | | |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0019 | -- | -- | -- | 0.0027 | 0.0029 | -- | 0.0036 | 0.0023 | | | | | |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.833 | 0.283 | 0.744 | 1.09 | 1.03 | 1.62 | -- | 0.848 | 1.13 | | | | | |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00015 | -- | -- | -- | 0.00076 | 0.00035 | -- | 0.00059 | 0.00024 | | | | | |
| Magnesium | ug/l | -- | mg/L | -- | 11.8 | 4.74 | -- | 12.3 | 5.05 | 9.40 | -- | 5.20 | 8.43 | | | | | |
| Manganese | ug/l | -- | mg/L | -- | 0.094 | 0.039 | 0.027 | 0.033 | 0.063 | 0.034 | -- | 0.077 | 0.029 | | | | | |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.00002 | -- | -- | -- | < 0.00002 | <0.00002 | -- | < 0.00002 | <0.00002 | | | | | |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | 0.0002 | -- | -- | 0.0002 | -- | | | | | |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0013 | -- | -- | -- | 0.0023 | 0.0030 | -- | 0.0011 | 0.0018 | | | | | |
| Potassium | ug/l | -- | mg/L | -- | 1.8 | -- | -- | -- | 1.2 | 1.6 | -- | 1.1 | 1.3 | | | | | |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Silicon | ug/l | -- | mg/L | -- | 6.30 | -- | -- | -- | 4.43 | 7.13 | -- | 3.97 | 5.96 | | | | | |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.0001 | -- | -- | -- | < 0.0001 | <0.0001 | -- | < 0.0001 | <0.0001 | | | | | |
| Sodium | ug/l | -- | mg/L | -- | 21.3 | 10.1 | 20.3 | 20.2 | 11.6 | 47.2 | -- | 7.5 | 44.6 | | | | | |
| Strontium | ug/l | -- | mg/L | -- | 0.190 | -- | -- | -- | 0.067 | 0.125 | -- | 0.071 | 0.116 | | | | | |
| Sulfur | ug/l | -- | mg/L | -- | 8.11 | -- | -- | -- | 2.5 | 2.94 | -- | 3.1 | 2.76 | | | | | |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.00005 | -- | -- | -- | < 0.00005 | 0.00006 | -- | < 0.00005 | <0.00005 | | | | | |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | | | |
| Titanium | ug/l | -- | mg/L | -- | 0.019 | -- | -- | -- | 0.039 | 0.048 | -- | 0.023 | 0.021 | | | | | |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0012 | -- | -- | -- | 0.0022 | 0.0027 | -- | 0.0016 | 0.0020 | | | | | |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <0.005 | -- | -- | -- | < 0.005 | 0.005 | -- | < 0.005 | 0.005 | | | | | |
| Phenols | | | | | | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <0.001 | -- | -- | -- | < 0.001 | <0.001 | -- | < 0.001 | <0.001 | | | | | |
| Field Measurements | | | | | | | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 9.0 | 15.7 | -- | 8.8 | 14.6 | -- | 7.2 | 13.5 | | | | | |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 406 | 260 | 308 | 407 | 260 | 429 | -- | 240 | 433 | | | | | |
| pH (Field) | - | 8.5 | - | 8.5 | 8.29 | 7.70 | 7.28 | 8.20 | 7.33 | 7.77 | -- | 7.61 | 7.72 | | | | | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 13.5 | 7.4 | 16.8 | 13.3 | 9.0 | 10.7 | -- | 9.4 | 18.5 | | | | | |

| Parameter | Unit (< June 2016) | (R) (1) PWQO | Unit (June 2016+) | (R) (1) PWQO | Moderate Impact | Moderate Impact | Moderate Impact | Moderate Impact | Ambient Conditions | Ambient Conditions | Ambient Conditions | Ambient Conditions |
|----------------------------------|-----------------------|--------------|----------------------|-------------------|-----------------|-----------------|-----------------|-----------------|--------------------|--------------------|--------------------|--------------------|
| | | | | | On-site pond | On-site pond | On-site pond | On-site pond | Eastern Ditch | Eastern Ditch | Eastern Ditch | Eastern Ditch |
| | | | | | GS12 | GS15 | GS15 | GS15 | GS20 | GS20 | GS20 | GS21 |
| | | | | | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 |
| | | | | GS-12 | GS-15 | GS-15 | GS-15 | GS-20 | GS-20 | GS-20 | GS-21 | |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(R) | mg/L | --(R) | 276 | 345 | 257 | 270 | 77 | 133 | 118 | 83 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.021 | 0.116 | 0.006 | 0.017 | < 0.01 | 0.0001 | 0.0001 | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.15 | 3.73 | 0.06 | 0.08 | < 0.01 | 0.07 | 0.07 | < 0.01 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | 5 | 6 | 3 | <3 | <3 | <3 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 62 | 80 | 68 | 22 | 30 | 27 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 108 | 102 | 100 | 109 | 29.9 | 34.7 | 39.5 | 25.7 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | 867 | -- | -- | -- | 440 | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 2.4 | 7.5 | 13.8 | 14.6 | 9.8 | 11.3 | 5.2 | 10.3 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 227 | 323 | 234 | 217 | 91 | 125 | 143 | 86 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | 0.43 | 0.08 | 0.09 | 3.64 | 3.73 | 3.32 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | < 0.05 | <0.05 | <0.05 | < 0.05 | <0.05 | <0.05 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 5.8 | 2.6 | 1.9 | 0.8 | 1.0 | 1.0 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 0.04 | 0.04 | 0.08 | 0.04 | 0.06 | 0.09 | 0.20 | 0.04 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 46 | 33 | 32 | 17 | 18 | 28 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 460 | 538 | -- | 453 | 153 | -- | 211 | 147 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(R) | ntu | --(R) | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | 0.06 | 0.04 | 0.02 | 1.07 | 1.07 | 3.31 | -- |
| Aluminum, dissolved | ug/l | 15-75 (R6) | mg/L | 0.015-0.075 (R6) | -- | 0.03 | 0.03 | 0.03 | 0.08 | 0.05 | 0.06 | -- |
| Barium | ug/l | -- | mg/L | -- | -- | 0.058 | 0.043 | 0.031 | 0.030 | 0.041 | 0.061 | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | < 0.0001 | <0.0001 | <0.0001 | < 0.0001 | <0.0001 | 0.0001 | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | 0.893 | 0.689 | 0.816 | 0.877 | 0.049 | 0.079 | 0.090 | 0.025 |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | -- | 0.000016 | <0.000015 | <0.000015 | 0.000028 | 0.000030 | 0.000046 | -- |
| Calcium | ug/l | -- | mg/L | -- | 40.1 | 72.8 | 43.3 | 36.8 | 20.3 | 29.1 | 33.5 | 19.5 |
| Chromium | ug/l | --(14) | mg/L | 14 | -- | 0.004 | -- | -- | 0.004 | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 0.001 | 0.0003 | 0.0002 | 0.0008 | 0.0008 | 0.0022 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 0.001 | 0.0006 | 0.0005 | 0.0044 | 0.0045 | 0.0073 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.029 | 0.076 | 0.033 | 0.021 | 1.04 | 1.58 | 4.59 | 0.840 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | -- | 0.00006 | 0.00006 | 0.00003 | 0.00052 | 0.00041 | 0.00116 | -- |
| Magnesium | ug/l | -- | mg/L | -- | 30.9 | 26.8 | 30.5 | 30.4 | 8.99 | 12.7 | 14.3 | 9.03 |
| Manganese | ug/l | -- | mg/L | -- | 0.070 | 0.069 | 0.163 | 0.059 | 0.028 | 0.149 | 0.117 | 0.035 |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | < 0.00002 | <0.00002 | <0.00002 | < 0.00002 | <0.00002 | <0.00002 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | 0.0003 | -- | -- | 0.0003 | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | 0.0049 | 0.0039 | 0.0036 | 0.0033 | 0.0042 | 0.0072 | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | 13.4 | 16.1 | 15.9 | 3.0 | 3.7 | 5.3 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 2.26 | 0.47 | 0.9 | 5.07 | 6.37 | 10.7 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | < 0.0001 | <0.0001 | <0.0001 | < 0.0001 | <0.0001 | <0.0001 | -- |
| Sodium | ug/l | -- | mg/L | -- | 91.6 | 74.0 | 88.6 | 90.4 | 22.2 | 28.9 | 31.0 | 18.6 |
| Strontium | ug/l | -- | mg/L | -- | -- | 0.484 | 0.381 | 0.361 | 0.107 | 0.146 | 0.170 | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | 11.3 | 11.1 | 11.1 | 4.0 | 5.38 | 10.0 | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | < 0.00005 | <0.00005 | <0.00005 | < 0.00005 | <0.00005 | <0.00005 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | < 0.005 | <0.005 | <0.005 | 0.051 | 0.063 | 0.224 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 0.0005 | 0.0003 | 0.0007 | 0.0028 | 0.0027 | 0.0070 | -- |
| Zinc | ug/l | 30 (15) | mg/L | 0.03 (15) | -- | < 0.005 | 0.005 | <0.005 | 0.007 | 0.006 | 0.023 | -- |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | -- | < 0.001 | <0.001 | 0.003 | < 0.001 | <0.001 | 0.002 | -- |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(R) | mg/L | --(R) | -- | 8.2 | 7.3 | -- | 9.8 | 7.0 | -- | 10.7 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 781 | 1100 | 836 | 768 | 370 | 497 | 696 | 390 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.52 | 8.06 | 8.26 | 8.74 | 7.47 | 6.70 | 6.90 | 8.02 |
| Temperature (Field) | deg c | --(R) | deg c | --(R) | 19.8 | 12.7 | 23.7 | 19.6 | 9.3 | 16.3 | 12.3 | 7.7 |

| Parameter | Unit (< June 2016) | (R) (1) PWQO | Unit (June 2016+) | (R) (1) PWQO | Ambient Conditions | Ambient Conditions | Not Impacted | Dry | Dry |
|----------------------------------|--------------------------|--------------|-------------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|
| | | | | | Eastern Ditch | Eastern Ditch | North Waste Limit | North Waste Limit | North Waste Limit |
| | | | | | GS21 | GS21 | S3 | S3 | S3 |
| | | | | | 16-Aug-2023 | 29-Sept-2023 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | | | GS-21 | GS-21 | S-3 | S-3 | S-3 |
| | | | | | | | | DRY | DRY |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(R) | mg/L | --(R) | 122 | 123 | 11 | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0013 | 0.0008 | 0.0001 | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.08 | 0.09 | 0.01 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | < 3 | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | 8 | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 30.5 | 36.4 | 1.6 | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 7.6 | 6.4 | 4.0 | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 123 | 128 | 15 | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | 0.07 | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | 0.5 | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 0.08 | 0.18 | 0.08 | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | 7 | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 201 | 198 | 22 | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(R) | ntu | --(R) | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | 0.04 | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (R6) | mg/L | 0.015-0.075 (R6) | -- | -- | 0.08 | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | 0.007 | -- | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | -- | < 0.0001 | -- | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | 0.046 | 0.059 | 0.006 | -- | -- |
| Cadmium | ug/l | 0.2 (12) | mg/L | 0.0002 (12) | -- | -- | < 0.000015 | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | 30.0 | 5.1 | -- | -- |
| Chromium | ug/l | --(14) | mg/L | 14 | -- | -- | < 0.001 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | 0.0003 | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | 0.0006 | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.072 | 5.05 | 0.382 | -- | -- |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | -- | -- | 0.00008 | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | 13.0 | 0.83 | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.030 | 0.199 | 0.022 | -- | -- |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | -- | < 0.00002 | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | < 0.0001 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | < 0.0002 | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | 0.6 | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | 4.63 | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | < 0.0001 | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 26.9 | 26.8 | 2.5 | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | 0.027 | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | 1.9 | -- | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | -- | < 0.00005 | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | < 0.005 | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | 0.0003 | -- | -- |
| Zinc | ug/l | 30 (15) | mg/L | 0.03 (15) | -- | -- | < 0.005 | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | -- | -- | < 0.001 | -- | -- |
| Field Measurements | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(R) | mg/L | --(R) | 14.6 | -- | 6.5 | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 355 | 377 | 70 | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.63 | 7.54 | 7.60 | -- | -- |
| Temperature (Field) | deg c | --(R) | deg c | --(R) | 16.6 | 12.0 | 8.5 | -- | -- |

| Parameter | Unit (< June 2016) | (a) PWQO | Unit (June 2016+) | (b) PWQO | S2 | | S2 | | S2 | | S2 | |
|----------------------------------|-----------------------|-------------------------|----------------------|-----------------------------|----------|---------|-------------|----------------|-------------|-------------|----------------|--------|
| | | | | | R.L. | R.L.*5 | 03-May-2023 | 03-May-2023 | 15-Aug-2023 | 15-Aug-2023 | S-2 | S-2 |
| | | | | | | | S-2 | S-2 | S-2 | S-2 | S-2 | S-2 |
| | | | | | | Dup #1 | RPD | | Dup #3 | RPD | | |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 5 | 40 | 49 | 47 | 4.17% | 105 | 105 | 0.00% |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.01 | 0.08 | < 0.01 | < 0.01 | NC | <0.01 | <0.01 | <0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.01 | 0.08 | < 0.01 | < 0.01 | NC | 0.06 | 0.06 | NC |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3 | 24 | 3 | 3 | NC | 4 | 3 | 28.57% |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 5 | 40 | 49 | 41 | 17.78% | 93 | 62 | 40.00% |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 0.5 | 4 | 18.4 | 18.9 | 2.68% | 39.3 | 39.6 | 0.76% |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 0.2 | 1.6 | 15.6 | 23.2 | 39.18% | 34.0 | 30.6 | 10.53% |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 1 | 8 | 60 | 61 | 1.65% | 116 | 124 | 6.67% |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.05 | 0.4 | 1.57 | 1.52 | 3.24% | 0.56 | 0.56 | 0.00% |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 0.05 | 0.4 | < 0.05 | < 0.05 | NC | <0.05 | <0.05 | NC |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.1 | 0.8 | 0.9 | 1.0 | 10.53% | 0.9 | 0.9 | 0.00% |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.01 | 0.08 | 0.14 | 0.17 | 19.35% | 0.08 | 0.08 | 0.00% |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 1 | 8 | 9 | 9 | 0.00% | 13 | 13 | 0.00% |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1 | 8 | 87 | 87 | 0.00% | -- | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.01 | 0.08 | 1.99 | 2.01 | 1.00% | 0.33 | 0.36 | 8.70% |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.01 | 0.08 | 0.18 | 0.19 | 5.41% | 0.13 | 0.13 | 0.00% |
| Barium | ug/l | -- | mg/L | -- | 0.001 | 0.008 | 0.028 | 0.029 | 3.51% | 0.029 | 0.031 | 6.67% |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | 0.0001 | 0.0008 | < 0.0001 | < 0.0001 | NC | <0.0001 | <0.0001 | NC |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.005 | 0.04 | 0.009 | 0.008 | NC | 0.014 | 0.013 | 7.41% |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000015 | 0.00012 | < 0.000015 | 0.000044 | NC | 0.000027 | 0.000031 | NC |
| Calcium | ug/l | -- | mg/L | -- | 0.02 | 0.16 | 15.3 | 16.0 | 4.47% | 32.5 | 34.8 | 6.84% |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.001 | 0.008 | 0.006 | 0.007 | NC | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0001 | 0.0008 | 0.0013 | 0.0014 | 7.41% | 0.0003 | 0.0003 | NC |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0001 | 0.0008 | 0.0041 | 0.0041 | 0.00% | 0.0023 | 0.0024 | 4.26% |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.005 | 0.04 | 2.17 | 2.19 | 0.92% | 1.36 | 1.46 | 7.09% |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00002 | 0.00016 | 0.00134 | 0.00134 | 0.00% | 0.00027 | 0.00029 | 7.14% |
| Magnesium | ug/l | -- | mg/L | -- | 0.02 | 0.16 | 4.93 | 5.09 | 3.19% | 8.47 | 9.07 | 6.84% |
| Manganese | ug/l | -- | mg/L | -- | 0.001 | 0.008 | 0.066 | 0.067 | 1.50% | 0.060 | 0.063 | 4.88% |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | 0.00002 | 0.00016 | < 0.00002 | < 0.00002 | NC | <0.00002 | <0.00002 | NC |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0001 | 0.0008 | 0.0002 | 0.0002 | 0.00% | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0002 | 0.0016 | 0.0034 | 0.0035 | 2.90% | 0.0019 | 0.0019 | 0.00% |
| Potassium | ug/l | -- | mg/L | -- | 0.1 | 0.8 | 1.6 | 1.7 | 6.06% | 1.7 | 1.8 | 5.71% |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 0.01 | 0.08 | 5.80 | 5.90 | 1.71% | 5.99 | 6.44 | 7.24% |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | 0.0001 | 0.0008 | < 0.0001 | < 0.0001 | NC | <0.0001 | <0.0001 | NC |
| Sodium | ug/l | -- | mg/L | -- | 0.2 | 1.6 | 10.5 | 10.9 | 3.74% | 21.3 | 22.6 | 5.92% |
| Strontium | ug/l | -- | mg/L | -- | 0.001 | 0.008 | 0.064 | 0.066 | 3.08% | 0.120 | 0.129 | 7.23% |
| Sulfur | ug/l | -- | mg/L | -- | 0.1 | 0.8 | 2.3 | 2.3 | 0.00% | 4.15 | 4.50 | 8.09% |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | 0.00005 | 0.0004 | < 0.00005 | < 0.00005 | NC | <0.00005 | <0.00005 | NC |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.005 | 0.04 | 0.110 | 0.109 | 0.91% | 0.015 | 0.016 | 6.45% |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0001 | 0.0008 | 0.0049 | 0.0050 | 2.02% | 0.0016 | 0.0016 | 0.00% |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.005 | 0.025 | 0.013 | 0.012 | NC | <0.005 | 0.005 | NC |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 0.002 | 0.01 | < 0.001 | < 0.001 | NC | <0.001 | <0.001 | NC |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | | | 7.0 | Average: 5.05% | | 15.0 | Average: 6.68% | |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | | | 350 | | | 310 | | |
| pH (Field) | - | 8.5 | - | 8.5 | | | 7.64 | | | 7.66 | | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | | | 7.6 | | | 16.9 | | |

| Parameter | Unit (< June 2016) | (a) PWQO | Unit (June 2016+) | (a) PWQO | S1 | S1 | |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|----------------|--------------|--------|
| | | | | | 29-Sept-2023 | 29-Sept-2023 | |
| | | | | | S-1 | S-1 | |
| | | | | | Dup #1 | RPD | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 135 | 140 | 3.64% |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <0.01 | <0.01 | NC |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <0.05 | <0.05 | NC |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 43.1 | 43.4 | 0.69% |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 5.1 | 7.0 | 31.40% |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 156 | 159 | 1.90% |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.04 | 0.04 | NC |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 214 | 213 | 0.47% |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.028 | 0.008 | NC |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 43.1 | 43.9 | 1.84% |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.932 | 1.01 | 8.03% |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 11.8 | 12.1 | 2.51% |
| Manganese | ug/l | -- | mg/L | -- | 0.079 | 0.080 | 1.26% |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 23.7 | 24.3 | 2.50% |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- |
| Field Measurements | | | | | Average: 5.42% | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 384 | | |
| pH (Field) | - | 8.5 | - | 8.5 | 7.90 | | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 13.0 | | |

| |
|---|
| <p>Footnotes:</p> <p>Tables should be read in conjunction with the accompanying document.</p> <p>< value = Indicates parameter not detected above laboratory method detection limit.</p> <p>> value = Indicates parameter detected above equipment analytical range.</p> <p>-- Chemical not analyzed or criteria not defined.</p> <p>Grey background indicates exceedances.</p> <p>(1) Provincial Water Quality Objectives (July 1994, reprinted February 1999)</p> <p>(2) Bold Font = Parameter concentration greater than PWQO</p> <p>(3) Monitoring location was dry during this sampling event. No sample was collected.</p> <p>(4) No sample was collected.</p> <p>(5) Alkalinity should not be decreased by more than 25% of the natural concentration.</p> <p>(6) Objective depends on water temperature and biota. Dissolved oxygen concentrations should not be less than the values specified in the PWQO document for cold water biota (e.g. salmonid fish communities) and warm water biota (e.g. centrarchid fish communities).</p> <p>(7) Current scientific evidence is insufficient to develop a firm Objective at this time. Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies: To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L; A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value; Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L.</p> <p>(8) (1) General: The natural thermal regime of any body of water shall not be altered so as to impair the quality of the natural environment. In particular, the diversity, distribution and abundance of plant and animal life shall not be significantly changed. (2) Waste Heat Discharge: (a) Ambient Temperature Changes: The temperature at the edge of a mixing zone shall not exceed the natural ambient water temperature at a representative control location by more than 10°C (18°F). However, in special circumstances, local conditions may require a significantly lower temperature difference than 10°C (18°F). Potential dischargers are to apply to the MOEE for guidance as to the allowable temperature rise for each thermal discharge. This ministry will also specify the nature of the mixing zone and the procedure for the establishment of a representative control location for temperature recording on a case-by-case basis. (b) Discharge Temperature Permitted: The maximum temperature of the receiving body of water, at any point in the thermal plume outside a mixing zone, shall not exceed 30°C (86°F) or the temperature of a representative control location plus 10°C (18°F) or the allowed temperature difference, whichever ever is the lesser temperature. These maximum temperatures are to be measured on a mean daily basis from continuous records. (c) Taking and Discharging of Cooling Water: Users of cooling water shall meet both the Objectives for temperature outlined above and the "Procedures for the Taking and Discharge of Cooling Water" as outlined in the MOEE publication Deriving Receiving-Water Based, Point-Source Effluent Requirements for Ontario Waters(1994).</p> <p>(9) Suspended matter should not be added to surface water in concentrations that will change the natural Secchi disc reading by more than 10 percent.</p> <p>(10) At pH 4.5 to 5.5 the Interim PWQO is 15 µg/L based on inorganic monomeric aluminum measure in clay-free samples; At pH > 5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs. At pH > 6.5 to 9.0, the Interim PWQO is 75 µg/L based on total aluminum measured in clay-free samples. If natural background aluminum concentrations in water bodies unaffected by man-made inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level. Note: pH values of < 6.5 and > 8.5 are outside the range considered acceptable by the PWQO for pH. See the Scientific Criteria Document for Development of Provincial Water Quality Objectives and Guidelines - Aluminum for a discussion of analytical procedures.</p> <p>(11) If hardness as CaCO3 < 75 mg/L, PWQO = 11 µg/L; if hardness as CaCO3 > 75 mg/L, PWQO = 1100 µg/L.</p> <p>(12) See Section 1.2.3. of PWQO. This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value.</p> <p>(13) An Interim PWQO also exists for this parameter. See Section 1.10 of the PWQO - Where both a PWQO and an Interim PWQO exist.</p> <p>(14) PWQO values exist for Cr(III) and Cr(VI)</p> <p>(15) If alkalinity as CaCO3 < 20 mg/L, PWQO = 5 µg/L; if alkalinity as CaCO3 from 20 to 40 mg/L, PWQO = 10 µg/L; if alkalinity as CaCO3 from 40 to 80 mg/L, PWQO = 20 µg/L; if alkalinity as CaCO3 > 80 mg/L, PWQO = 25 ug/L. An Interim PWQO also exists for this parameter. See Section 1.10 of the PWQO - Where both a PWQO and an Interim PWQO exist.</p> <p>(16) In a filtered water sample.</p> <p>(17) See Section 1.2.2. of PWQO. This Interim PWQO is currently under development. The value is subject to change upon publication by MOEE.</p> <p>(18) Determined by the total reactive phenols test - the 4-AAP (4-amino-antipyrine) test. This objective should be used primarily as a screening tool. The isomer specific PWQOs for various phenolics should be employed where possible.</p> <p>(19) BOD Analysis:reported >114 mg/L on the highest dilution factor, the sample dilutions werent sufficient enough to obtain a valid result. Results should be used with discretion.</p> <p>(20) Metals Analysis:Detection Limit was raised due to matrix interferences.</p> <p>(21) Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.</p> <p>(22) No result(s) available.</p> <p>(23) Parameter was not measured.</p> <p>(24) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.</p> <p>(25) Monitoring location was frozen during this sampling event. No sample was collected.</p> <p>(26) Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly.</p> <p>(27) Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method.</p> <p>(28) Insufficient water for sample collection or analysis at this monitoring location during sampling event.</p> <p>(29) SL</p> <p>(30) Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly.</p> <p>Data prior to 2015 by others</p> <p>Data base adapted from GAL 2015</p> |
|---|

APPENDIX I-2

Historical Inorganic Data (PDF Only)

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-----------------------------|-------------|-------------|-------------|
| | | | 01-Nov-1990 | 08-Aug-1991 | 04-Dec-1991 ⁽²⁵⁾ | 29-Apr-1992 | 06-Sep-1992 | 28-Nov-1992 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 88000 | -- | -- | 47000 | 100000 | 72000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | <100 | -- | -- | <100 | <100 | 40 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | <1000 | 2000 | <1000 |
| Chemical Oxygen Demand | mg/L | -- | 26000 | -- | -- | 33000 | 25000 | 32000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 6000 | 3200 | -- | 5000 | 13000 | 13000 |
| Color | color unit | -- | -- | -- | -- | 133 | 45 | 183 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 12600 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 93000 | -- | -- | 65000 | 112000 | 81000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | -- | -- | <100 | <100 | 240 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 930 | -- | -- | 430 | 760 | 440 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 930 | -- | -- | 430 | 760 | 400 |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | 90 | 80 | 110 |
| Sulphate | mg/L | 128-429 (BC FW) | 17000 | 18200 | -- | 13000 | 8000 | 15000 |
| Total Dissolved Solids | mg/L | -- | 200000 | 168000 | -- | 90000 | 170000 | 104000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | 13400 | 11000 | 15000 |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | 7000 | 35000 | 40000 |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | 5.2 | 14 | 11 |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | 900 | 1320 | 1140 |
| Barium | mg/L | -- | -- | -- | -- | 30 | 50 | 30 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | <10 | <10 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | <10 | <10 | <10 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | <0.2 | <0.15 | <0.15 |
| Calcium | mg/L | -- | 24000 | -- | -- | 16000 | 30000 | 21000 |
| Chromium | mg/L | 14 | -- | -- | -- | <10 | 20 | <10 |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | <10 | <10 | -- |
| Copper | mg/L | 0.005 | <50 | -- | -- | <5 | 5 | <5 |
| Iron | mg/L | 0.3 | 2430 | 6520 | -- | 920 | 3350 | 1440 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | <50 | -- | -- | <2 | <2 | <2 |
| Magnesium | mg/L | -- | 8000 | -- | -- | 6000 | 9000 | 7000 |
| Manganese | mg/L | -- | 120 | 230 | -- | 100 | 470 | 80 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <100 | -- | -- | <0.2 | <0.2 | <0.2 |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | <10 | <10 | -- |
| Nickel | mg/L | 0.025 | <50 | -- | -- | <10 | <10 | <10 |
| Potassium | mg/L | -- | 2000 | -- | -- | <1000 | 3000 | 2000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | <1 | <1 | <1 |
| Silicon | mg/L | -- | -- | -- | -- | 3400 | 5500 | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 5000 | 3000 | -- | 5000 | 9000 | 8000 |
| Strontium | mg/L | -- | -- | -- | -- | <10 | 120 | 80 |
| Sulfur | mg/L | -- | -- | -- | -- | 6000 | 3000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | <50 | <50 | -- |
| Tin | mg/L | -- | -- | -- | -- | <50 | <50 | -- |
| Titanium | mg/L | -- | -- | -- | -- | 30 | <10 | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | 20 | <10 | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | <50 | -- | -- | 30 | <10 | 10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | -- | -- | 11200 | 1300 | 11900 |
| Conductivity (Field) | uS/cm | -- | -- | 147 | -- | 174 | 270 | 180 |
| pH (Field) | - | 8.5 | 7.88 | -- | -- | 7.3 | 6.8 | 7.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | -- | -- | -- | 10 | 9 | 2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-------------------|-----------------|-----------------|-----------------|-------------|-------------|-----------------|
| | | | 04-May-1993 (4) | 29-Aug-1993 (4) | 11-Nov-1993 (4) | 04-Jun-1994 | 07-Sep-1994 | 24-Nov-1994 (4) |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- (6) | -- | -- | -- | 83000 | 128000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | 33000 | 25000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | -- | -- | -- | 10000 | 14000 | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | -- | -- | -- | 14100 | 7100 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | -- | -- | -- | 107000 | 145000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 (7) | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | -- | -- | -- | 110000 | 190000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- (9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 (10) | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 (11) | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 (12) | -- | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 (13) | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | -- | -- | -- | -- | -- | -- |
| Lead | mg/L | 0.005-0.025 (16) | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | mg/L | 0.0002 (16) | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | -- | -- | -- | 8000 | 6000 | -- |
| Strontium | mg/L | -- | -- | -- | -- | 80 | 130 | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 (17) | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 (13) | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 (18) | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- (6) | -- | -- | -- | 11100 | 10500 | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 180 | 280 | -- |
| pH (Field) | - | 8.5 | -- | -- | -- | 6.7 | 7.7 | -- |
| Temperature (Field) | deg c | -- (6) | -- | -- | -- | 12 | 12 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|--------------------|-------------|-------------|-------------|-------------|
| | | | 28-May-1995 | 11-Sep-1995 | 07-Nov-1995 | 17-Jul-1996 | 22-Nov-1996 | 10-Jun-1997 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 91000 | 132000 | -- | 79000 | 79000 | 105000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 31000 | 18000 | -- | 31000 | 29000 | 35000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 11000 | 11000 | 12000 | 18000 | 10000 | 12000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 11200 | 7800 | -- | 11300 | 10200 | 11100 |
| Hardness, Calcium Carbonate | mg/L | -- | 105000 | 140000 | -- | 84000 | 97000 | 103000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | 80 | -- | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 136000 | 192000 | -- | 152000 | 128000 | 156000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | 28000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1590 | 1660 | 1640 | 460 | 1330 | 1600 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | 8000 |
| Manganese | mg/L | -- | 130 | 100 | -- | 50 | 150 | 190 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 8000 | 13000 | -- | 12000 | 9000 | 10000 |
| Strontium | mg/L | -- | 91 | 150 | -- | 97 | 80 | 109 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11000 | -- ⁽²³⁾ | -- | 8700 | -- | 5400 |
| Conductivity (Field) | uS/cm | -- | 210 | 310 | 230 | 170 | 130 | 290 |
| pH (Field) | - | 8.5 | 7 | 7.5 | 8.1 | 6.3 | 7 | 6.8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 14 | 17 | 6 | 20 | 0.5 | 20 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 09-Sep-1997 | 09-Jun-1998 | 20-Aug-1998 | 25-May-1999 | 31-Aug-1999 | 01-Jun-2000 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 103000 | 99000 | 126000 | 89000 | 129000 | 74000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 33000 | 18000 | 22000 | 29000 | 23000 | 36000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 13000 | 13000 | 15000 | 13000 | 25000 | 8000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 13000 | 9700 | 8500 | 12400 | 7800 | 13300 |
| Hardness, Calcium Carbonate | mg/L | -- | 115000 | 108000 | 129000 | 96000 | 132000 | 75000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 160000 | 148000 | 196000 | 136000 | 208000 | 116000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | 20000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 6830 | 560 | 2730 | 1410 | 1490 | 70 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | 6000 |
| Manganese | mg/L | -- | 1630 | <10 | 190 | 90 | 270 | 10 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 9000 | 8000 | 12000 | -- | 23000 | 8000 |
| Strontium | mg/L | -- | 141 | 103 | 119 | 82 | 105 | 212 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 5200 | 6400 | 8900 | 9700 | 12400 | 3100 |
| Conductivity (Field) | uS/cm | -- | 230 | 200 | 230 | 160 | 265 | 230 |
| pH (Field) | - | 8.5 | 7 | 7.45 | 6.8 | 7.6 | 6.45 | 6.9 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 17 | 27 | 18 | 16 | 19 | 11 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-----------------------------|-------------|
| | | | 18-Aug-2000 | 30-May-2001 | 10-Aug-2001 | 05-Apr-2002 | 06-Aug-2002 ^(2B) | 01-Nov-2002 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 104000 | 88000 | 110000 | 47000 | -- | 116000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | <20 | <20 | <20 | -- | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | 80 | 60 | 90 | -- | <20 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 33000 | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 14000 | 23000 | 19000 | 13000 | -- | 19000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 13000 | 9600 | 3000 | 9300 | -- | 6300 |
| Hardness, Calcium Carbonate | mg/L | -- | 98000 | 110000 | 115000 | 63000 | -- | 136000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | 80 | 270 | 90 | -- | 30 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 192000 | 228000 | 176000 | 118000 | -- | 218000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | <10 | 20 | <50 | -- | <50 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 26000 | 29000 | 31000 | 17000 | -- | 38000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1220 | 1000 | 2390 | 890 | -- | 300 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 8000 | 9000 | 9000 | 5000 | -- | 10000 |
| Manganese | mg/L | -- | 60 | 100 | 520 | 70 | -- | 34 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 11000 | 12000 | 14000 | 10000 | -- | 15000 |
| Strontium | mg/L | -- | 85 | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 6890 | 10660 | 8340 | 12100 | -- | 5820 |
| Conductivity (Field) | uS/cm | -- | 231 | 661 | 206 | 140 | -- | 210 |
| pH (Field) | - | 8.5 | 7.5 | 6.9 | 8.3 | 7 | -- | 7.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 15.6 | 9.2 | 25.5 | 4 | -- | 3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 12-May-2003 | 26-Aug-2003 | 19-Nov-2003 | 26-May-2004 | 28-Aug-2004 | 25-Nov-2004 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 69000 | 168000 | 70000 | 76000 | 114000 | 71000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 250 | 50 | 30 | 60 | 80 | <30 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 27000 | 48000 | 18000 | 15700 | 13300 | 21100 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 12500 | 9500 | 11700 | 17800 | 14400 | 13900 |
| Hardness, Calcium Carbonate | mg/L | -- | 94000 | 178000 | 84000 | 92700 | 118600 | 101200 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 130 | 100 | 80 | 36 | 167 | 58 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 174000 | 302000 | 159000 | 168000 | 158000 | 194000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <50 | <50 | <10 | <10 | 10 | <10 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 26000 | 50000 | 22000 | 25500 | 33900 | 27000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 810 | 490 | 800 | 1500 | 2000 | 1760 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 7000 | 13000 | 7000 | 7020 | 8190 | 8200 |
| Manganese | mg/L | -- | 75 | 281 | 80 | 67 | 514 | 121 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 16000 | 24000 | 9000 | 10500 | 8600 | 10700 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9280 | 4920 | 6610 | 6780 | 6310 | 9380 |
| Conductivity (Field) | uS/cm | -- | 160 | 140 | 200 | 172 | 180 | 510 |
| pH (Field) | - | 8.5 | 7.4 | 7.3 | 7.2 | 7.15 | 7.2 | 7.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 6 | 13 | 1 | 15.8 | 17 | 2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 26-May-2005 | 26-Aug-2005 | 15-Nov-2005 | 01-Jun-2006 | 06-Sep-2006 | 20-Nov-2006 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 86000 | 134000 | 76000 | 94000 | 73000 | 61000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 30 | 80 | 40 | 50 | 30 | 40 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 17000 | 44000 | 24000 | 22000 | 19000 | 11000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 10900 | 6000 | 14100 | 13800 | 16000 | 15300 |
| Hardness, Calcium Carbonate | mg/L | -- | 94000 | 163000 | 104000 | 91000 | 91000 | 75000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 70 | 300 | 90 | 90 | 110 | 80 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 155000 | 283000 | 168000 | 177000 | 155000 | 116000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 20 | 30 | <10 | 30 | 10 | 20 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 26000 | 44000 | 27000 | 25000 | 25000 | 20000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1090 | 3590 | 1490 | 1210 | 1440 | 1310 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 7000 | 13000 | 9000 | 7000 | 7000 | 6000 |
| Manganese | mg/L | -- | 80 | 190 | 120 | 60 | 70 | 110 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 10000 | 25000 | 14000 | 18000 | 11000 | 7000 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8910 | 7500 | 7400 | 4000 | 10100 | 10140 |
| Conductivity (Field) | uS/cm | -- | 239 | 600 | 120 | 273 | 238 | 490 |
| pH (Field) | - | 8.5 | 7.2 | 6.9 | 7.4 | 8.5 | 7.2 | 7.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 9 | 19.2 | 8.2 | 21 | 11 | 2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 29-May-2007 | 23-Aug-2007 | 25-Nov-2007 | 01-May-2008 | 11-Aug-2008 | 04-Nov-2008 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 100000 | 218000 | 90000 | 48000 | 120000 | 83000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 50 | 40 | <20 | 140 | 100 | 40 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 27000 | 69000 | 18000 | 14000 | 42000 | 25000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 11300 | 7000 | 9400 | 15100 | 11600 | 15600 |
| Hardness, Calcium Carbonate | mg/L | -- | 100000 | 130000 | 103000 | 66000 | 108000 | 86000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 160 | 580 | 180 | 100 | 190 | 120 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 190000 | 430000 | 175000 | 106000 | 249000 | 180000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 40 | 270 | 10 | <10 | 50 | 20 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 27000 | 34000 | 28000 | 18000 | 30000 | 23000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1790 | 1400 | 740 | 1130 | 1320 | 1120 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 8000 | 11000 | 8000 | 5000 | 8000 | 7000 |
| Manganese | mg/L | -- | 160 | 160 | 60 | 70 | 140 | 110 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 17000 | 95000 | 10000 | 9000 | 32000 | 16000 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9390 | 2010 | 8800 | 10620 | 3910 | 9270 |
| Conductivity (Field) | uS/cm | -- | 350 | 600 | 220 | 120 | 360 | 235 |
| pH (Field) | - | 8.5 | 8.2 | 7.6 | 7.9 | 7 | 7.4 | 8.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 16.2 | 19.1 | 0.3 | 11.3 | 18 | 5.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|---------------------|--------------------|--------------------|---------------------|--------------------|--------------------|
| | | | 09-Apr-2009 C-10 | 05-Aug-2009 S-1 | 03-Nov-2009 S-1 | 01-Jun-2010 SW-8 | 13-Aug-2010 O-1 | 12-Nov-2010 S-1 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 52000 | 84000 | 83000 | 134000 | 158000 | 90000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <0.91 | 0.61 | 0.11 | 0.96 | <0.04 | <0.01 |
| Ammonia Nitrogen | mg/L | -- | <50 | 50 | 70 | 170 | <50 | <50 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 16000 | 27000 | 25000 | 38000 | 57000 | 20000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9700 | 23200 | 16700 | 12700 | 8900 | 11900 |
| Hardness, Calcium Carbonate | mg/L | -- | 56000 | 85000 | 94000 | 130000 | 120000 | 90000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 74 | 250 | 80 | 170 | 180 | 69 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 100000 | 165000 | 176000 | 250000 | 316000 | 160000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <20 | 20 | <20 | 50 | 70 | <20 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 990 | 2200 | 1500 | 2300 | 3000 | 1700 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 80 | 110 | 80 | 330 | 160 | 130 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 9500 | 15000 | 17000 | 34000 | 53000 | 16000 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11970 | 9710 | 10600 | 13810 | 8850 | 8260 |
| Conductivity (Field) | uS/cm | -- | 165 | 252 | 259 | 437 | 467 | 267 |
| pH (Field) | - | 8.5 | 8.2 | 7.59 | 7.04 | 7.29 | 6.39 | 6.24 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 4.2 | 17.1 | 7.3 | 15.8 | 15.6 | 1.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | | 28-Apr-2011 B-1 | 24-Aug-2011 S-1 | 07-Nov-2011 S-1 | 05-Jun-2012 S-1 | 29-Aug-2012 S-1 | 19-Nov-2012 S-1 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 54000 | 145000 | 118000 | 58000 | 250000 | 150000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <0.61 | <0.82 | <0.13 | <0.21 | <1.72 | 0.27 |
| Ammonia Nitrogen | mg/L | -- | <50 | <50 | <50 | <50 | <50 | 70 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 12000 | 42000 | 30000 | 20000 | 47000 | 37000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 13100 | 6300 | 7600 | 22000 | 5100 | 4600 |
| Hardness, Calcium Carbonate | mg/L | -- | 66000 | 120000 | 110000 | 75000 | 56000 | 140000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 280 | 120 | 72 | 83 | 360 | 87 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 96000 | 252000 | 154000 | 168000 | 396000 | 262000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <20 | 80 | 30 | <20 | 300 | 60 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 3400 | 1100 | 900 | 1900 | 3000 | 730 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 90 | 60 | 90 | 90 | 70 | 40 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 7600 | 48000 | 28000 | 14000 | 130000 | 44000 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7970 | 11600 | 12550 | 8950 | 5910 | 10490 |
| Conductivity (Field) | uS/cm | -- | 655 | 285 | 601 | 798 | 657 | 489 |
| pH (Field) | - | 8.5 | 7.63 | 7.75 | 7.30 | 7.21 | 8.09 | 7.67 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 15.7 | 16.1 | 5.2 | 14.5 | 15.8 | 0.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|--------------------|-------------|-------------|-------------|
| | | | 22-Apr-2013 | 06-Sep-2013 | 29-Nov-2013 | 09-May-2014 | 27-Aug-2014 | 24-Nov-2014 |
| | | | S-1 | S-1 | S-1 | S-1 | S-1 | S-1 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 48000 | 160000 | 100000 | 82000 | 160000 | 50000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.49 | <0.51 | 0.43 | 1.47 | 2.3 | 1.15 |
| Ammonia Nitrogen | mg/L | -- | 77 | <50 | 95 | 87 | 85 | 180 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 14000 | 38000 | 27000 | 23000 | 46000 | 14000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 12000 | 6200 | 10000 | 11000 | 6200 | 13000 |
| Hardness, Calcium Carbonate | mg/L | -- | 61000 | 120000 | 110000 | 88000 | 130000 | 56000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 130 | 130 | 94 | 76 | 110 | 900 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 142000 | 272000 | 192000 | 156000 | 300000 | 188000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <20 | 90 | 30 | <20 | 80 | <20 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1300 | 2100 | 1500 | 1200 | 1500 | 10000 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 70 | 70 | 150 | 110 | 80 | 230 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 9700 | 57000 | 22000 | 18000 | 50000 | 8500 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 14850 | 9770 | -- ⁽²³⁾ | 10960 | 7890 | 12900 |
| Conductivity (Field) | uS/cm | -- | 147 | 481 | -- ⁽²³⁾ | 252 | 496 | 177 |
| pH (Field) | - | 8.5 | 7.79 | 7.73 | 7.74 | 7.97 | 7.95 | 7.74 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 2.7 | 10.4 | 0.1 | 9.9 | 16.8 | 4.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|--------------------|-----------------------------------|--------------------|--------------------|--------------------|--------------------|
| | | | 14-May-2015 S-1 | 18-Aug-2015 ⁽⁹⁾ S-1 | 20-Nov-2015 S-1 | 07-Dec-2015 S-1 | 15-Jun-2016 S-1 | 15-Jun-2016 S-1 |
| | | | Dup | | | | | |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 85000 | 140000 | 93000 | -- | 156 | 156 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <0.72 | <1.56 | <0.35 | -- | < 0.01 | < 0.01 |
| Ammonia Nitrogen | mg/L | -- | <50 | <50 | <50 | -- | 0.07 | 0.08 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 19000 | 48000 | 28000 | -- | 40.3 | 40.3 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 15000 | 6900 | 14000 | -- | 7.6 | 7.9 |
| Hardness, Calcium Carbonate | mg/L | -- | 96000 | 160000 | 120000 | -- | 111 | 112 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 36 | 98 | 180 | 92 | 0.16 | 0.16 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 168000 | 282000 | 240000 | -- | -- | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <20 | <20 | <20 | -- | 0.066 | 0.066 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1400 | 2200 | 1200 | -- | 2.54 | 2.59 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 90 | 140 | 70 | -- | 0.121 | 0.12 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 12000 | 32000 | 20000 | -- | 46.6 | 47.1 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 10410 | 10080 | 10950 | -- | 8.53 | -- |
| Conductivity (Field) | uS/cm | -- | 239 | 301 | 396 | -- | 438 | -- |
| pH (Field) | - | 8.5 | 7.89 | 7.96 | 7.71 | -- | 7.3 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 10.2 | 18.4 | 6.1 | -- | 16.3 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | RPD | S1 | S1 | RPD | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-----|-------------|-------------|-----|-------------|-------------|
| | | | | 22-Aug-2016 | 22-Aug-2016 | | 13-Oct-2016 | 13-Oct-2016 |
| | | | | S-1 | Dup | | S-1 | Dup |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 0% | 121 | 122 | 1% | 206 | 203 |
| Ammonia, unionized (Field) | mg/L | 0.02 | NC | < 0.01 | < 0.01 | NC | < 0.01 | < 0.01 |
| Ammonia Nitrogen | mg/L | -- | 13% | 0.11 | 0.13 | 0% | 0.07 | 0.07 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 0% | 41.5 | 43.6 | 0% | 74.4 | 74.4 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 4% | 9.7 | 9.9 | 0% | 6.6 | 6.4 |
| Hardness, Calcium Carbonate | mg/L | -- | 1% | 111 | 118 | 0% | 117 | 116 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0% | 0.18 | 0.18 | 0% | 0.17 | 0.18 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0% | 0.047 | 0.048 | 0% | 0.107 | 0.104 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 2% | 0.865 | 0.964 | 0% | 1.05 | 1.03 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 1% | 0.077 | 0.078 | 0% | 0.106 | 0.104 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 1% | 36.5 | 38.4 | 0% | 79.7 | 78.7 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | 7.01 | -- | -- | 7.38 | -- |
| Conductivity (Field) | uS/cm | -- | -- | 404 | -- | -- | 610 | -- |
| pH (Field) | - | 8.5 | -- | 7.2 | -- | -- | 7.9 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | -- | 17.8 | -- | -- | 9.7 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | RPD | S1 | S1 | RPD | S1 | S1 | RPD |
|----------------------------------|----------------------|-----------------------------|-----|--------------------|--------------------|-----|--------------------|--------------------|-----|
| | | | | 01-May-2017 S-1 | 01-May-2017 S-1 | | 20-Sep-2017 S-1 | 20-Sep-2017 S-1 | |
| | | | | Dup (S3) | | | Dup (S3) | | |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁵⁾ | 1% | 51 | 50 | 2% | 148 | 147 | 1% |
| Ammonia, unionized (Field) | mg/L | 0.02 | NC | < 0.01 | < 0.01 | NC | < 0.01 | < 0.01 | NC |
| Ammonia Nitrogen | mg/L | -- | 0% | 0.13 | 0.13 | 0% | 0.02 | 0.04 | 67% |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 0% | 9.3 | 9.4 | 1% | 31.6 | 30.9 | 2% |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | 203 | 183 | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 3% | 12.3 | 12.1 | 2% | 9.6 | 9.6 | 0% |
| Hardness, Calcium Carbonate | mg/L | -- | 1% | 104 | 86 | 19% | 136 | 115 | 17% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 6% | 0.4 | 0.39 | 3% | 0.11 | 0.11 | 0% |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | -- | 104 | 93.2 | -- | 222 | 222 | 0% |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽²⁾ | 3% | 0.014 | 0.012 | 15% | 0.061 | 0.061 | 0% |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 2% | 9.43 | 6.24 | 41% | 1.82 | 1.7 | 7% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 2% | 0.23 | 0.162 | 35% | 0.104 | 0.093 | 11% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 1% | 9.3 | 8.6 | 8% | 40.8 | 38.6 | 6% |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁵⁾ | -- | 9.92 | -- | -- | 6.75 | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | 158 | -- | -- | 374 | -- | -- |
| pH (Field) | - | 8.5 | -- | 7.1 | -- | -- | 7.8 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | -- | 6.9 | -- | -- | 17 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|---------------|
| | | | 6-Nov-2017 | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 25-Apr-2019 | 24-Sept-2019 |
| | | | S-1 | S-1 | S-1 | S-1 | S-1 | S-1 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 57 | 65 | 131 | 81 | 0.12 | 85 |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | -- | < 0.01 |
| Ammonia Nitrogen | mg/L | -- | 0.02 | 0.04 | 0.05 | 0.05 | -- | 0.04 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | <3 | <3 | <3 | -- | < 3 |
| Chemical Oxygen Demand | mg/L | -- | -- | 79 | -- | -- | -- | 42 |
| Chloride | mg/L | 120-640 (CWQG FW) | 9.6 | 17.1 | 54 | 33.6 | 17.3 | 16.2 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | 224 | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 21.6 | 16 | 7.8 | 15 | 16.2 | 13.9 |
| Hardness, Calcium Carbonate | mg/L | -- | 70 | 94 | 115 | 114 | 58 | 114 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 0.97 | -- | -- | -- | 0.18 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | <0.05 | <0.05 | <0.05 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 0.6 | -- | -- | -- | 0.9 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.1 | 0.09 | 0.1 | 0.07 | 0.26 | 0.22 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | 7 | -- | -- | 23 |
| Total Dissolved Solids | mg/L | -- | 86 | 110 | 229 | 158 | 80 | 151 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | 0.71 | -- | -- | -- | 0.68 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 0.13 | -- | -- | -- | 0.52 |
| Barium | mg/L | -- | -- | 0.033 | -- | -- | -- | 0.031 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.002 | -- | -- | -- | < 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.009 | 0.011 | 0.043 | 0.008 | -- | 0.02 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | 0.000023 | -- | -- | -- | 0.000043 |
| Calcium | mg/L | -- | -- | 25 | -- | 30.6 | -- | 32.7 |
| Chromium | mg/L | 14 | -- | 0.002 | -- | -- | -- | 0.002 |
| Cobalt | mg/L | 0.0009 | -- | 0.0005 | -- | -- | -- | 0.0006 |
| Copper | mg/L | 0.005 | -- | 0.0024 | -- | -- | -- | 0.0059 |
| Iron | mg/L | 0.3 | 1.38 | 1.08 | 1.44 | 1.01 | 2.18 | 1.23 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁶⁾ | -- | 0.00062 | -- | -- | -- | 0.00075 |
| Magnesium | mg/L | -- | -- | 7.55 | -- | 9.8 | -- | 7.82 |
| Manganese | mg/L | -- | 0.061 | 0.06 | 0.048 | 0.061 | 0.067 | 0.054 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.00002 | -- | -- | -- | < 0.00002 |
| Molybdenum | mg/L | 0.04 | -- | 0.0003 | -- | -- | -- | 0.0005 |
| Nickel | mg/L | 0.025 | -- | 0.002 | -- | -- | -- | 0.0027 |
| Potassium | mg/L | -- | -- | 1.3 | -- | -- | -- | 5.1 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 4.5 | -- | -- | -- | 5.6 |
| Silver | mg/L | 0.0001 | -- | <0.00002 | -- | -- | -- | < 0.0001 |
| Sodium | mg/L | -- | 8.1 | 12 | 41.7 | 19.9 | 10.2 | 13 |
| Strontium | mg/L | -- | -- | 0.108 | -- | -- | -- | 0.113 |
| Sulfur | mg/L | -- | -- | 2.4 | -- | -- | -- | 9.8 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | 0.00022 | -- | -- | -- | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 0.024 | -- | -- | -- | 0.045 |
| Vanadium | mg/L | 0.006 | -- | 0.0028 | -- | -- | -- | 0.0036 |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | 0.02 | -- | -- | -- | 0.013 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | < 0.001 | -- | -- | -- | < 0.002 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 6.79 | 7.04 | 6.88 | 12.6 | -- | 8.2 |
| Conductivity (Field) | uS/cm | -- | 164 | 178 | 355 | 253 | 181 | 306 |
| pH (Field) | - | 8.5 | 7.6 | 7.6 | 7.9 | 7.2 | 8.4 | 7.75 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 10 | 8.8 | 20 | 4.3 | 5.7 | 15.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 | S1 |
|----------------------------------|----------------------|-----------------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|
| | | | 31-Oct-2019 S-1 | 25-May-2020 S-1 | 29-Jul-2020 S-1 | 3-Nov-2020 S-1 | 25-May-2021 S-1 | 16-Aug-2021 S-1 | 10-Nov-2021 S-1 | 30-May-2022 S-1 | 27-July-2022 S-1 | 25-Oct-2022 S-1 |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 113 | 103 | 110 | 106 | 120 | 119 | 116 | 82 | 139 | 128 |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | 0.007 | 0.0007 | 0.0007 | 0.0002 | < 0.01 | < 0.01 | < 0.01 |
| Ammonia Nitrogen | mg/L | -- | 0.03 | 0.03 | 0.04 | 0.17 | 0.17 | 0.03 | 0.05 | 0.03 | 0.04 | < 0.01 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | < 3 | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | 30 | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 90.5 | 40.6 | 70.7 | 48 | 32.7 | 38.9 | 62.8 | 32.7 | 36.4 | 42.7 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- | 435 | 435 |
| Dissolved Organic Carbon | mg/L | -- | 7.7 | 10.9 | 10.1 | 10.6 | 8.3 | 9.9 | 11.3 | 23 | 12.1 | 7.8 |
| Hardness, Calcium Carbonate | mg/L | -- | 180 | 122 | 171 | 137 | 134 | 124 | 162 | 103 | 160 | 164 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 0.09 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | < 0.05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 0.5 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.080 | 0.05 | 0.2 | 0.05 | 0.38 | 0.03 | 0.03 | 0.06 | 0.05 | 0.03 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 7 | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 306 | 183 | 258 | 207 | 184 | 190 | 245 | 150 | 230 | 225 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | 0.25 | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 0.07 | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | 0.024 | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | < 0.0001 | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.01 | 0.01 | 0.1 | 0.011 | 0.014 | 0.012 | 0.036 | 0.007 | 0.017 | 0.012 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | 0.000018 | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 50.5 | 30.7 | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | < 0.001 | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | 0.0003 | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | 0.0017 | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 0.767 | 0.958 | 3.91 | 0.69 | 4.07 | 0.913 | 0.901 | 1.28 | 0.691 | 0.504 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | 0.00019 | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 13 | 8.41 | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 0.046 | 0.067 | 0.234 | 0.052 | 0.689 | 0.046 | 0.111 | 0.037 | 0.058 | 0.018 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | < 0.00002 | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | 0.0003 | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | 0.0012 | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | 1.6 | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 4.3 | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | < 0.0001 | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 49.5 | 25.5 | 37.3 | 27.2 | 17.6 | 21.1 | 36.5 | 18.8 | 25.9 | 25.9 |
| Strontium | mg/L | -- | -- | 0.093 | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | 2.6 | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | < 0.00005 | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 0.015 | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | 0.0015 | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | < 0.005 | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | < 0.002 | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11.9 | 9.1 | 5.1 | 17.2 | 8.2 | 16.5 | 12 | 11 | 7 | 7.8 |
| Conductivity (Field) | uS/cm | -- | 180 | 375 | 629 | 427 | 346 | 420 | 471 | 300 | 440 | 390 |
| pH (Field) | - | 8.5 | 7.2 | 7.2 | 7.9 | 8.7 | 8.15 | 7.9 | 7.4 | 7.5 | 7.44 | 8.17 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 10.5 | 15 | 12.2 | 1.4 | 16.2 | 16.5 | 7.6 | 17.2 | 18.8 | 14.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | S1 | S1 | S1 | S1 | RPD |
|----------------------------------|----------------------|-----------------------------|--------------------|--------------------|---------------------|---------------------|--------|
| | | | 04-May-2023 S-1 | 16-Aug-2023 S-1 | 29-Sept-2023 S-1 | 29-Sept-2023 S-1 | |
| | | | | | | Dup #1 | |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 54 | 101 | 135 | 140 | 3.64% |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | <0.01 | <0.01 | <0.01 | NC |
| Ammonia Nitrogen | mg/L | -- | < 0.01 | <0.05 | <0.05 | <0.05 | NC |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 22.2 | 24.6 | 43.1 | 43.4 | 0.69% |
| Color | color unit | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 30.2 | 22.3 | 5.1 | 7.0 | 31.40% |
| Hardness, Calcium Carbonate | mg/L | -- | 66 | 115 | 156 | 159 | 1.90% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.06 | 0.04 | 0.04 | 0.04 | 0.00% |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 96 | 153 | 214 | 213 | 0.47% |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.008 | 0.011 | 0.028 | 0.008 | NC |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 17.6 | -- | 43.1 | 43.9 | 1.84% |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1.09 | 1.01 | 0.932 | 1.01 | 8.03% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 5.27 | -- | 11.8 | 12.1 | 2.51% |
| Manganese | mg/L | -- | 0.067 | 0.067 | 0.079 | 0.080 | 1.26% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 12.1 | 14.0 | 23.7 | 24.3 | 2.50% |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- |
| Phenols | | | | | | Average: | 4.93% |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8.7 | 12.5 | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | 250 | 264 | 384 | -- | -- |
| pH (Field) | - | 8.5 | 7.56 | 7.80 | 7.90 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 8.6 | 16.8 | 13.0 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|--------------|-------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| | | | | | 09-Aug-1991 | 04-Dec-1991 | 29-Apr-1992 | 06-Sep-1992 | 28-Nov-1992 | 04-May-1993 (6) |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- (6) | mg/L | -- (6) | -- | -- | 48000 | 96000 | 72000 | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | <100 | <100 | 50 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | <1000 | 2000 | 1000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | 27000 | 25000 | 41000 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 10400 | 24000 | 5000 | 11000 | 13000 | -- |
| Color | color unit | -- | color unit | -- | -- | -- | 131 | 47 | 181 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | -- | 67000 | 109000 | 83000 | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | 200 | <100 | 260 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | <100 | <100 | <100 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | 480 | 560 | 560 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | 480 | 560 | 510 | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010 -0.030 (7) | -- | -- | 120 | 90 | 140 | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 31000 | 17000 | 12000 | 6000 | 18000 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 128000 | 184000 | 100000 | 160000 | 150000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | 13600 | 9800 | 15000 | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | 6000 | 9000 | 42000 | -- |
| Turbidity | ntu | -- (9) | ntu | -- (9) | -- | -- | 6 | 4.2 | 11 | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | -- | -- | 750 | 370 | 870 | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | 30 | 30 | 30 | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | -- | <10 | <10 | -- | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | -- | -- | <10 | <10 | 10 | -- |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | -- | -- | <0.2 | <0.15 | <0.15 | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | 17000 | 29000 | 20000 | -- |
| Chromium | ug/l | -- (14) | mg/L | 14 | -- | -- | <10 | 20 | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | <10 | <10 | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | <5 | <5 | <5 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 3100 | 1760 | 940 | 1480 | 1160 | -- |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | -- | -- | <2 | <2 | <2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | 6000 | 9000 | 8000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 200 | 70 | 100 | 360 | 60 | -- |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | -- | <0.2 | <0.2 | <0.2 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | 20 | <10 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | <10 | <10 | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | <1000 | 3000 | 2000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | <1 | <1 | <1 | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | 3500 | 6500 | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | <0.1 | <0.1 | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 5000 | 15000 | 5000 | 10000 | 8000 | -- |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | <10 | 120 | 90 | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | 5000 | 2000 | -- | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | -- | <50 | <50 | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | <50 | <50 | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | <10 | <10 | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | 20 | <10 | -- | -- |
| Zinc | ug/l | 30 (18) | mg/L | 0.03 (18) | -- | -- | <10 | <10 | <10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (19) | mg/L | 0.001 (19) | -- | -- | <1 | <1 | <1 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- (6) | mg/L | -- (6) | -- | -- | 11700 | 4900 | 12000 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 164 | 113 | 184 | 260 | 190 | -- |
| pH (Field) | - | 8.5 | - | 8.5 | -- | -- | 7.2 | 6.9 | 7.1 | -- |
| Temperature (Field) | deg c | -- (6) | deg c | -- (6) | -- | -- | 6 | 8.5 | 2.5 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|--------------|-------------------|-------------------|-----------------|-----------------|-------------|-------------|-----------------|-------------|
| | | | | | 29-Aug-1993 (4) | 11-Nov-1993 (4) | 04-Jun-1994 | 07-Sep-1994 | 24-Nov-1994 (4) | 28-May-1995 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- (6) | mg/L | -- (6) | -- | -- | 81000 | 112000 | -- | 99000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | <20 | <20 | -- | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | 50 | 40 | -- | 20 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | <1000 | <1000 | -- | 1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | 33000 | 15000 | -- | 21000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | -- | 9000 | 13000 | -- | 12000 |
| Color | color unit | -- | color unit | -- | -- | -- | 100 | 22 | -- | 64 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | 11500 | 6400 | -- | 11200 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | -- | 107000 | 146000 | -- | 107000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010 -0.030 (7) | -- | -- | 100 | 60 | -- | 60 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | 120000 | 160000 | -- | 140000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- (9) | ntu | -- (9) | -- | -- | 8.1 | 15 | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | -- | -- | 120 | 50 | -- | 390 |
| Barium | ug/l | -- | mg/L | -- | -- | -- | 20 | 20 | -- | 20 |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | -- | <10 | <10 | -- | <10 |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | -- | -- | <10 | 20 | -- | 20 |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | -- | -- | <0.15 | <0.15 | -- | <0.15 |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | 28000 | 42000 | -- | 28000 |
| Chromium | ug/l | -- (14) | mg/L | 14 | -- | -- | <10 | <10 | -- | 160 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | <0.4 | 0.5 | -- | <0.4 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | <5 | <5 | -- | <5 |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | -- | 760 | 1460 | -- | 1340 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | -- | -- | <2 | <2 | -- | <2 |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | 9000 | 10000 | -- | 9000 |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | 110 | 90 | -- | 90 |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | -- | <0.2 | <0.2 | -- | <0.2 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | <10 | <10 | -- | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | <10 | <10 | -- | <10 |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | <1000 | 1000 | -- | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | 3900 | 4600 | -- | 5200 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | <0.1 | 0.2 | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | -- | -- | 4000 | 5000 | -- | 8000 |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | 90 | 130 | -- | 97 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | 5000 | 8000 | -- | 4000 |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | -- | <5 | <5 | -- | <10 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | <50 |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | <10 | <10 | -- | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | <7 | <7 | -- | 7 |
| Zinc | ug/l | 30 (18) | mg/L | 0.03 (18) | -- | -- | <10 | <10 | -- | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (19) | mg/L | 0.001 (19) | -- | -- | 3 | <1 | -- | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- (6) | mg/L | -- (6) | -- | -- | 9800 | 10900 | -- | 10700 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | -- | 180 | 260 | -- | 205 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | -- | 6.5 | 7.5 | -- | 7 |
| Temperature (Field) | deg c | -- (6) | deg c | -- (6) | -- | -- | 11.5 | 11 | -- | 12.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|--------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 11-Sep-1995 | 07-Nov-1995 | 17-Jul-1996 | 22-Nov-1996 | 10-Jun-1997 | 09-Sep-1997 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 100000 | -- | 75000 | 79000 | 103000 | 104000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | -- | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 30 | -- | 100 | 210 | <20 | 80 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | -- | <3000 | <1000 | 3000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 13000 | -- | 24000 | 26000 | 29000 | 21000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 13000 | 12000 | 18000 | 10000 | 15000 | 17000 |
| Color | color unit | -- | color unit | -- | 13 | -- | 40 | 48 | 25 | 18 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 7100 | -- | 10200 | 10000 | 9100 | 7400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 121000 | -- | 90000 | 95000 | 110000 | 134000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 120 | 50 | 470 | 100 | 90 | 90 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 172000 | -- | 152000 | 140000 | 164000 | 200000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 520 | -- | 430 | 190 | 30 | 160 |
| Barium | ug/l | -- | mg/L | -- | 30 | -- | 20 | 20 | 30 | 30 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | -- | <10 | 10 | <10 | <10 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 20 | -- | 20 | <10 | 10 | 20 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | -- | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | ug/l | -- | mg/L | -- | 32000 | -- | 23000 | 23000 | 29000 | 34000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | -- | <10 | <10 | <10 | 10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.4 | -- | <0.4 | 0.4 | <0.4 | 0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | -- | <5 | <5 | <5 | <5 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1380 | 1250 | 830 | 690 | 970 | 1010 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | -- | <2 | <2 | <2 | <2 |
| Magnesium | ug/l | -- | mg/L | -- | 10000 | -- | 8000 | 9000 | 9000 | 12000 |
| Manganese | ug/l | -- | mg/L | -- | 100 | -- | 50 | 130 | 110 | 170 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | -- | 0.7 | <0.2 | <0.2 | <0.2 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | -- | <10 | <30 | <10 | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | -- | <10 | <10 | <10 | <10 |
| Potassium | ug/l | -- | mg/L | -- | 2000 | -- | 3000 | 1000 | 2000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6900 | -- | 5200 | 5700 | 5100 | 5500 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 10000 | -- | 12000 | 6000 | 10000 | 11000 |
| Strontium | ug/l | -- | mg/L | -- | 154 | -- | 103 | 83 | 132 | 161 |
| Sulfur | ug/l | -- | mg/L | -- | 9000 | -- | 6000 | <3000 | 5000 | 8000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | -- | <5 | <5 | <5 | <5 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | <50 | -- | <50 |
| Titanium | ug/l | -- | mg/L | -- | 30 | -- | 20 | <10 | 10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | -- | <7 | <7 | <7 | <7 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | -- | <10 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- ⁽²³⁾ | -- | 8600 | 12600 | 6900 | 8100 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 260 | 240 | 160 | 130 | 650 | 260 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.8 | 8 | 8.2 | 6.6 | 7 | 6.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 13 | 6 | 20 | 0.5 | 18 | 16.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 09-Jun-1998 | 20-Aug-1998 | 26-May-1999 | 31-Aug-1999 | 01-Jun-2000 | 18-Aug-2000 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 101000 | 114000 | 93000 | 154000 | 77000 | 102000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 70 | 40 | <20 | 60 | 40 | 50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 17000 | 2000 | 3000 | <1000 | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 23000 | 22000 | 34000 | 13000 | 33000 | 28000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 12000 | 16000 | 12000 | 26000 | 11000 | 19000 |
| Color | color unit | -- | color unit | -- | 48 | 21 | 48 | 9 | 80 | 53 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 8700 | 7700 | 11900 | 4100 | 12100 | 11900 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 115000 | 136000 | 132000 | 236000 | 84000 | 110000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | 250 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 660 | 560 | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 80 | 100 | 70 | 80 | 30 | 50 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 16000 | 22000 | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 160000 | 196000 | 132000 | 316000 | 124000 | 200000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 60 | 270 | <30 | <30 | 330 | 150 |
| Barium | ug/l | -- | mg/L | -- | 20 | 30 | 20 | 40 | 70 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | <10 | <10 | <2 | <2 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <10 | <10 | <10 | 30 | 10 | <10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 31000 | 15000 | 25000 | 63000 | 22000 | 29000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | <10 | <10 | <10 | <10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.4 | <0.4 | <0.4 | <0.4 | <0.4 | 0.6 |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <5 | <5 | <10 | <1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1440 | 1270 | 340 | 640 | 1020 | 1090 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | 3 | <2 | <2 | <2 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 9000 | 5000 | 7000 | 19000 | 7000 | 9000 |
| Manganese | ug/l | -- | mg/L | -- | 100 | 90 | 50 | 80 | 50 | 30 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.2 | <0.2 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | ug/l | -- | mg/L | -- | 2000 | 2000 | 1000 | 2000 | 1000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 3500 | 5400 | 4200 | 6200 | 4780 | 6470 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 8000 | 6000 | 9000 | 18000 | 8000 | 14000 |
| Strontium | ug/l | -- | mg/L | -- | 124 | 161 | 94 | 301 | 77 | 96 |
| Sulfur | ug/l | -- | mg/L | -- | 6000 | 5000 | 3000 | 18000 | <1000 | 4000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | <5 | <2 | <1 |
| Tin | ug/l | -- | mg/L | -- | <50 | <50 | <50 | <50 | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | <10 | <10 | <10 | <10 | 10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | <7 | <7 | <7 | <2 | <1 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | 20 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 4400 | 9400 | 9800 | 6800 | 4000 | 6970 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 210 | 240 | 170 | 335 | 320 | 253 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.44 | 6.5 | 7.8 | 6.6 | 6.79 | 7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 21 | 17 | 15 | 17 | 11 | 13.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|----------------------------|-------------|-----------------------------|-------------|-------------|
| | | | | | 30-May-2001 | 10-Aug-2001 ⁽⁶⁾ | 05-Apr-2002 | 06-Aug-2002 ⁽²⁸⁾ | 01-Nov-2002 | 12-May-2003 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 89000 | -- | 45000 | -- | 115000 | 70000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | -- | <20 | -- | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 80 | -- | 80 | -- | <20 | 220 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 1000 | -- | 2000 | -- | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 22000 | -- | 33000 | -- | 13000 | 36000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 23000 | -- | 13000 | -- | 29000 | 26000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9300 | -- | 9400 | -- | 7300 | 12200 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 107000 | -- | 67000 | -- | 138000 | 95000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1150 | -- | 1020 | -- | <100 | 640 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | -- | <100 | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 810 | -- | 540 | -- | 460 | 1050 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 90 | -- | 150 | -- | 70 | 120 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 13000 | -- | 18000 | -- | 32000 | 36000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 216000 | -- | 114000 | -- | 241000 | 169000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <50 | -- | 130 | -- | <10 | 120 |
| Barium | ug/l | -- | mg/L | -- | 30 | -- | 10 | -- | 20 | 30 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <2 | -- | <2 | -- | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <10 | -- | <50 | -- | <50 | <50 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 28000 | -- | 17000 | -- | 37000 | 25000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <1 | -- | <1 | -- | 1 | 3 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.2 | -- | 0.3 | -- | 0.3 | 0.6 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1 | -- | 1 | -- | 2 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1050 | -- | 200 | -- | 400 | 810 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | -- | <1 | -- | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 9000 | -- | 6000 | -- | 11000 | 8000 |
| Manganese | ug/l | -- | mg/L | -- | 100 | -- | 50 | -- | 40 | 73 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | -- | <10 | -- | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | -- | <10 | -- | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 2000 | -- | 1000 | -- | 3000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5300 | -- | 4090 | -- | 3700 | 4700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 13000 | -- | 10000 | -- | 17000 | 16000 |
| Strontium | ug/l | -- | mg/L | -- | 100 | -- | 57 | -- | 112 | 87 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | -- | <1 | -- | <1 | <1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 20 | -- | <10 | -- | <10 | 30 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <1 | -- | 1 | -- | <1 | 3 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | -- | <10 | -- | <5 | <5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | <1 | -- | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 10200 | -- | 13100 | -- | 6110 | 9600 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 646 | -- | 140 | -- | 280 | 170 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.92 | -- | 7.2 | -- | 7.1 | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 9.3 | -- | 4 | -- | 3 | 12 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 26-Aug-2003 | 19-Nov-2003 | 26-May-2004 | 28-Aug-2004 | 25-Nov-2004 | 26-May-2005 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 238000 | 66000 | 72000 | 114000 | 66000 | 90000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 90 | 90 | 40 | 100 | 160 | 140 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 2000 | <1000 | <500 | 1900 | 2100 | 2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 23000 | 26000 | 52000 | 52000 | 72000 | 26000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 41000 | 22000 | 16800 | 13100 | 29700 | 18000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9200 | 11700 | 13100 | 13600 | 16300 | 11200 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 275000 | 79000 | 88400 | 127900 | 93300 | 100000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 490 | 390 | <200 | <200 | 1900 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <200 | 600 | <200 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 720 | 520 | 670 | 660 | 1880 | 1020 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 80 | 230 | 79 | 164 | 448 | 80 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 52000 | 16000 | 7800 | 10800 | 15200 | 12000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 402000 | 156000 | 168000 | 172000 | 218000 | 164000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | 658 | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <10 | 170 | 154 | 1540 | 3260 | 50 |
| Barium | ug/l | -- | mg/L | -- | 40 | 20 | 24 | 40 | 53 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <50 | <10 | 10 | 12 | <5 | 10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 74000 | 20000 | 23800 | 36100 | 24400 | 27000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 11 | 2 | <5 | <5 | 8 | 2 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.9 | 0.6 | 0.5 | 1.3 | 1.6 | 0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | 2 | 2 | 3.9 | 3.1 | 6.3 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 950 | 960 | 1750 | 2100 | 3780 | 1020 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | 0.6 | 0.8 | 1.4 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 22000 | 7000 | 7070 | 9180 | 7890 | 8000 |
| Manganese | ug/l | -- | mg/L | -- | 368 | 60 | 63 | 550 | 114 | 90 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <1 | <1 | <1 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | 1 | 3 | 5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 3000 | 3000 | 1500 | 3100 | 8600 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5500 | 5400 | 5310 | 6760 | 9990 | 4600 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 24000 | 14000 | 10000 | 9500 | 13300 | 11000 |
| Strontium | ug/l | -- | mg/L | -- | 349 | 79 | 80 | 118 | 91 | 103 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | 3300 | 3900 | 5700 | 4000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <1 | <0.05 | <0.05 | <0.05 | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | 20 | 31 | 65 | 175 | 30 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 4 | 2 | 2.9 | 4.1 | 6.9 | 3 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <10 | <5 | 15 | 17 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | 20 | 1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 5110 | 7110 | 8880 | 6400 | 9400 | 9660 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 125 | 230 | 170 | 200 | 600 | 252 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.5 | 7.3 | 7.6 | 7.2 | 7.2 | 7.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 15 | 2 | 15 | 18 | 2 | 9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 26-Aug-2005 | 15-Nov-2005 | 01-Jun-2006 | 06-Sep-2006 | 20-Nov-2006 | 29-May-2007 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 132000 | 75000 | 97000 | 76000 | 64000 | 108000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 70 | 90 | 50 | 50 | 50 | 80 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 1000 | <1000 | <1000 | <1000 | <1000 | 1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 17000 | 38000 | 33000 | 50000 | 30000 | 16000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 37000 | 22000 | 24000 | 21000 | 13000 | 29000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 6500 | 14100 | 13600 | 18300 | 14700 | 10100 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 154000 | 100000 | 91000 | 82000 | 70000 | 121000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 430 | 140 | 500 | 460 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 390 | 580 | 470 | 820 | 500 | 360 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 90 | 90 | 80 | 110 | 100 | 400 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 13000 | 16000 | 10000 | 9000 | 9000 | 10000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 261000 | 169000 | 182000 | 163000 | 118000 | 208000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <10 | 160 | 300 | 470 | 230 | 40 |
| Barium | ug/l | -- | mg/L | -- | 30 | 20 | 20 | 30 | 20 | 30 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 20 | <10 | 30 | 30 | 10 | 50 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 42000 | 27000 | 25000 | 23000 | 18000 | 32000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 3 | 3 | 50 | 3 | <1 | 3 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.4 | 0.5 | 0.3 | 0.5 | 0.4 | 0.9 |
| Copper | ug/l | 5 | mg/L | 0.005 | 2 | 2 | 2 | 2 | 1 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1080 | 1140 | 1170 | 1350 | 1000 | 1880 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 12000 | 8000 | 7000 | 6000 | 6000 | 10000 |
| Manganese | ug/l | -- | mg/L | -- | 50 | 120 | 60 | 80 | 90 | 140 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <5 | <5 | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | 5 | <5 | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 3000 | 2000 | 1000 | 2000 | 1000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6300 | 8100 | 4500 | 7000 | 6300 | 6500 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 22000 | 14000 | 16000 | 17000 | 8000 | 18000 |
| Strontium | ug/l | -- | mg/L | -- | 135 | 80 | 95 | 95 | 57 | 112 |
| Sulfur | ug/l | -- | mg/L | -- | 4300 | 5300 | 3300 | 3000 | 3000 | 3300 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.4 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 20 | 20 | 20 | 20 | 20 | 30 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 3 | 3 | 1 | 3 | 2 | 4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | 10 | 30 | 20 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | 1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8100 | 7100 | -- | 11110 | 10710 | 7230 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 550 | 80 | 300 | 495 | 535 | 230 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.8 | 7.2 | 8 | 7.2 | 7.3 | 8.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 19.4 | 7.9 | 21 | 11 | 2 | 14.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-------------|-------------|-------------|-------------|-----------------------|------------------------|
| | | | | | 23-Aug-2007 | 01-May-2008 | 11-Aug-2008 | 04-Nov-2008 | 09-Apr-2009 | 05-Aug-2009 |
| | | | | | | | | | C-9 | S-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 222000 | 54000 | 124000 | 87000 | 54000 | 88000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 80 | 70 | 80 | 50 | <50 | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 1000 | <1000 | 2000 | <2000 | 2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 18000 | 32000 | 21000 | 48000 | 24000 | 58000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 67000 | 17000 | 38000 | 25000 | 18000 ⁽²¹⁾ | 28000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9900 | 14300 | 11300 | 15000 | 11400 | 23400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 215000 | 70000 | 122000 | 99000 | 61000 | 94000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 380 | 150 | 540 | 500 | 500 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <10 | 10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 650 | 590 | 810 | 550 | 700 | 1200 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 500 | 500 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 180 | 90 | 120 | 110 | 74 | 260 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 17000 | 9000 | 10000 | 13000 | <5000 ⁽²¹⁾ | <10000 ⁽²¹⁾ |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 437000 | 121000 | 248000 | 186000 | 110000 | 182000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 20 | 750 | 30 | 120 | 150 | 130 |
| Barium | ug/l | -- | mg/L | -- | 50 | 20 | 30 | 30 | 21 | 32 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <0.5 | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 130 | <10 | 50 | 20 | 10 | 20 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 58000 | 18000 | 34000 | 28000 | 16000 | 27000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 4 | 2 | 4 | 2 | <5 | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.7 | 0.8 | 0.5 | 0.5 | 0.6 | 0.7 |
| Copper | ug/l | 5 | mg/L | 0.005 | 2 | 2 | 2 | 2 | 2 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 920 | 1210 | 1320 | 1110 | 1100 | 2100 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | 0.6 | 0.7 |
| Magnesium | ug/l | -- | mg/L | -- | 17000 | 6000 | 9000 | 7000 | 4900 | 7200 |
| Manganese | ug/l | -- | mg/L | -- | 380 | 100 | 190 | 130 | 75 | 100 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <5 | <5 | <1 | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | <5 | <5 | 2 | 2 |
| Potassium | ug/l | -- | mg/L | -- | 4000 | 1000 | 2000 | 2000 | 900 | 4400 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 8300 | 5200 | 7100 | 7100 | 5600 | 8300 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 54000 | 10000 | 26000 | 15000 | 8900 | 17000 |
| Strontium | ug/l | -- | mg/L | -- | 239 | 70 | 140 | 77 | 57 | 96 |
| Sulfur | ug/l | -- | mg/L | -- | 5700 | 3000 | 3000 | 4000 | 2800 | 2400 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.05 | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 30 | 30 | 20 | 20 | 61 | 61 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 6 | 3 | 5 | 2 | 4 | 4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | <10 | 8 | 6 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 5970 | 10940 | 7000 | 8850 | 12460 | 9830 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 600 | 140 | 370 | 240 | 170 | 303 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.6 | 6.9 | 6.7 | 8.4 | 8.6 | 7.81 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 16.6 | 10.6 | 16.9 | 6.6 | 2 | 17.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|------------------------|-------------|-------------|--------------------|-------------|
| | | | | | 15-Sep-2009 | 03-Nov-2009 | 01-Jun-2010 | 24-Jun-2010 | 13-Aug-2010 | 09-Sep-2010 |
| | | | | | S-1 | S-2 | SW-5 | S-2 | L-3 | S-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 84000 | 149000 | -- | -- | 174000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <20 | <20 | -- | -- | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | 90 | 160 | -- | -- | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | <2000 | 4000 | -- | -- | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 44000 | 42000 | -- | -- | 25000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 27000 | 40000 | -- | -- | 49000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 17100 | 12800 | -- | -- | 8800 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 98000 | 150000 | -- | -- | 150000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | 700 | 300 | -- | -- | 200 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | <10 | 50 | -- | -- | 20 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 900 | 1200 | -- | -- | 700 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | 700 | 300 | -- | -- | 200 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 55 | 77 | 180 | 210 | 140 | 100 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | <10000 ⁽²¹⁾ | 13000 | -- | -- | 12000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 180000 | 284000 | -- | -- | 340000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 160 | 19 | -- | -- | 14 |
| Barium | ug/l | -- | mg/L | -- | -- | 27 | 37 | -- | -- | 38 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.5 | <0.5 | -- | -- | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | 20 | 60 | -- | -- | 80 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | <0.1 | -- | -- | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | -- | 27000 | 44000 | -- | -- | 43000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <5 | <5 | -- | -- | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 0.6 | 0.7 | -- | -- | 0.7 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 3 | 4 | -- | -- | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 4500 | 1600 | 2000 | 2300 | 1900 | 1400 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <0.5 | <0.5 | -- | -- | 0.5 |
| Magnesium | ug/l | -- | mg/L | -- | -- | 8800 | 13000 | -- | -- | 13000 |
| Manganese | ug/l | -- | mg/L | -- | -- | 92 | 350 | -- | -- | 150 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | -- | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <1 | <1 | -- | -- | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | 2 | 2 | -- | -- | 2 |
| Potassium | ug/l | -- | mg/L | -- | -- | 2000 | 4200 | -- | -- | 3100 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 7600 | 6300 | -- | -- | 8500 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.1 | <0.1 | -- | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | -- | 19000 | 39000 | -- | -- | 52000 |
| Strontium | ug/l | -- | mg/L | -- | -- | 91 | 160 | -- | -- | 160 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 3700 | 4200 | -- | -- | 3800 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.05 | <0.05 | -- | -- | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | 51 | 43 | -- | -- | 65 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 3 | 3 | -- | -- | 4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | 7 | 7 | -- | -- | 5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | <1 | -- | -- | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 14880 | 11100 | -- | -- ⁽²³⁾ | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 600 | 289 | 498 | -- | -- | 505 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.5 | 6.85 | 6.77 | -- | -- | 6.01 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 14.5 | 7.1 | 15.5 | -- | -- | 15.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 12-Nov-2010 | 28-Apr-2011 | 27-May-2011 | 24-Aug-2011 | 07-Sep-2011 | 07-Nov-2011 |
| | | | | | C-5 | A-6 | S-2 | C-1 | S-2 | L-5 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 93000 | 55000 | -- | 155000 | -- | 121000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | -- | <20 | -- | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <50 | <50 | -- | <50 | -- | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <2000 | <2000 | -- | <2000 | -- | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 36000 | 40000 | -- | 19000 | -- | 34000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 21000 | 16000 | -- | 42000 | -- | 31000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 11700 | 13500 | -- | 6700 | -- | 7800 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 98000 | 58000 | -- | 140000 | -- | 120000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 300 | 400 | -- | 200 | -- | 100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | -- | <10 | -- | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 700 | 1000 | -- | 500 | -- | 500 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 300 | 400 | -- | 200 | -- | 100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 60 | 240 | 150 | 110 | 120 | 64 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 8000 | 1000 | -- | 16000 | -- | 11000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 178000 | 106000 | -- | 254000 | -- | 184000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 89 | 150 | -- | 13 | -- | 31 |
| Barium | ug/l | -- | mg/L | -- | 22 | 38 | -- | 29 | -- | 21 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | -- | <0.5 | -- | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 20 | 20 | -- | 70 | -- | 40 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | -- | <0.1 | -- | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 25000 | 18000 | -- | 41000 | -- | 31000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | 8 | -- | <5 | -- | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.5 | 1.6 | -- | <0.5 | -- | <0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | 2 | 5 | -- | 2 | -- | <1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1500 | 3200 | 2300 | 1100 | -- | 800 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | 1.4 | -- | <0.5 | -- | <0.5 |
| Magnesium | ug/l | -- | mg/L | -- | 8700 | 5700 | -- | 12000 | -- | 10000 |
| Manganese | ug/l | -- | mg/L | -- | 110 | 76 | -- | 120 | -- | 81 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | -- | <0.1 | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <1 | <1 | -- | <0.5 | -- | <0.5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 2 | 5 | -- | 2 | -- | <1 |
| Potassium | ug/l | -- | mg/L | -- | 1500 | 2400 | -- | 3400 | -- | 1800 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 7800 | 8100 | -- | 6000 | -- | 6700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | -- | <0.1 | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 17000 | 9000 | -- | 51000 | -- | 29000 |
| Strontium | ug/l | -- | mg/L | -- | 83 | 64 | -- | 150 | -- | 110 |
| Sulfur | ug/l | -- | mg/L | -- | 3100 | 2200 | -- | 5300 | -- | 3900 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | -- | <0.05 | -- | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 30 | 180 | -- | 27 | -- | 11 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1 | 7 | -- | 3.0 | -- | 0.9 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5 | 20 | -- | <5 | -- | <5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | -- | <1 | -- | 3 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9840 | 11120 | -- | 11740 | -- | 3150 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 291 | 661 | -- | 430 | -- | 360 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.34 | 7.49 | -- | 7.69 | -- | 7.17 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 1.5 | 15.4 | -- | 16.1 | -- | 5.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 05-Jun-2012 | 29-Aug-2012 | 05-Oct-2012 | 19-Nov-2012 | 22-Apr-2013 | 06-Sep-2013 |
| | | | | | S-2 | S-2 | S2 | S-2 | S-2 | S-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 60000 | 270000 | -- | 170000 | 50000 | 180000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <0.1 | 9 | -- | 0.2 | 0.39 | 0.08 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <50 | 97 | -- | 66 | 80 | 53 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <2000 | <2000 | -- | 3000 | <2000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 51000 | 20000 | -- | 17000 | 40000 | 18000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 21000 | 43000 | -- | 41000 | 14000 | 35000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 22000 | 6900 | -- | 4800 | 12000 | 6900 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 70000 | 180000 | -- | 150000 | 63000 | 150000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1100 | 260 | -- | <100 | 350 | 140 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | -- | <10 | <10 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 710 | 370 | -- | 570 | 810 | 550 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 1100 | 260 | -- | <100 | 350 | 140 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 78 | 170 | 110 | 69 | 53 | 120 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | <1000 | 21000 | -- | 18000 | 5000 | 15000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 170000 | 356000 | -- | 274000 | 134000 | 306000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 530 | 21 | -- | 5.9 | 190 | 8.2 |
| Barium | ug/l | -- | mg/L | -- | 17 | 35 | -- | 26 | 19 | 30 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | <0.50 | -- | <0.50 | <0.50 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 16 | 170 | -- | 81 | 14 | 81 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | <0.10 | -- | <0.10 | <0.10 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 21000 | 54000 | -- | 42000 | 18000 | 43000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | <5.0 | -- | <5.0 | <5.0 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | 0.66 | -- | <0.50 | <0.50 | 0.64 |
| Copper | ug/l | 5 | mg/L | 0.005 | 3.1 | 3.2 | -- | 1.6 | 1.9 | 2.4 |
| Iron | ug/l | 300 | mg/L | 0.3 | 850 | 1100 | -- | 550 | 970 | 1300 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.50 | <0.50 | -- | <0.50 | <0.50 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 6000 | 16000 | -- | 13000 | 5700 | 13000 |
| Manganese | ug/l | -- | mg/L | -- | 76 | 200 | -- | 72 | 71 | 140 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | -- | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | 0.53 | -- | <0.50 | <0.50 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <1.0 | 2.4 | -- | <1.0 | 1.6 | 2.0 |
| Potassium | ug/l | -- | mg/L | -- | 1000 | 4200 | -- | 2600 | 970 | 2600 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5200 | 6200 | -- | 6700 | 5000 | 6700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | <0.10 | -- | <0.10 | <0.10 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 14000 | 81000 | -- | 51000 | 10000 | 48000 |
| Strontium | ug/l | -- | mg/L | -- | 77 | 290 | -- | 150 | 65 | 190 |
| Sulfur | ug/l | -- | mg/L | -- | 2500 | 6700 | -- | 6900 | 3900 | 5200 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | <0.050 | -- | <0.050 | <0.050 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <5.0 | 36 | -- | 13 | 33 | 36 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2.4 | 2.6 | -- | 1.2 | 2.4 | 2.8 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5.0 | 7.4 | -- | 6.2 | 7.2 | 5.8 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1.0 | 12 | -- | <1.0 | <1.0 | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9290 | 5340 | -- | 10080 | 13890 | 7090 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 200 | 728 | -- | 472 | 165 | 522 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.06 | 7.54 | -- | 7.57 | 7.69 | 6.89 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 14.1 | 14.9 | -- | 0.1 | 2.2 | 10.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|----------------------------|-------------|-------------|--------------|
| | | | | | 15-Oct-2013 | 29-Nov-2013 | 09-May-2014 ⁽⁶⁾ | 27-Aug-2014 | 23-Sep-2014 | 24-Nov-2014 |
| | | | | | S-2 | S-2 | S-2 | S-2 | S-2 | SW-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 110000 | 86000 | 180000 | -- | 50000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | 1.05 | 1.06 | 4.13 | -- | 2.22 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | 95 | 76 | 110 | -- | 230 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | <2000 | 2000 | <2000 | -- | 7000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 33000 | 31000 | 19000 | -- | 58000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 28000 | 23000 | 41000 | -- | 13000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 11000 | 11000 | 6500 | -- | 14000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 110000 | 92000 | 150000 | -- | 51000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | 190 | 280 | 220 | -- | 1000 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | <10 | <20 | 10 | -- | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 580 | 490 | 600 | -- | 3000 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | 190 | 280 | 230 | -- | 1000 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 300 | 85 | 76 | 130 | 65 | 1000 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 12000 | 11000 | 17000 | -- | 1000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 196000 | 166000 | 302000 | -- | 178000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 81 | 140 | 12 | -- | 99 |
| Barium | ug/l | -- | mg/L | -- | -- | 28 | 24 | 36 | -- | 86 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.50 | <0.50 | <0.50 | -- | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | 24 | 17 | 65 | -- | 13 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.10 | <0.10 | <0.10 | -- | 0.12 |
| Calcium | ug/l | -- | mg/L | -- | -- | 34000 | 28000 | 41000 | -- | 18000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <5.0 | <5.0 | <5.0 | -- | 25 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 0.58 | <0.50 | 0.70 | -- | 4.8 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 2.0 | 2.2 | 3.0 | -- | 14 |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | 1500 | 1100 | 1700 | 1100 | 10000 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <0.50 | <0.50 | <0.50 | -- | 3.9 |
| Magnesium | ug/l | -- | mg/L | -- | -- | 10000 | 8300 | 12000 | -- | 8300 |
| Manganese | ug/l | -- | mg/L | -- | -- | 170 | 110 | 120 | -- | 240 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <0.50 | <0.50 | 0.68 | -- | 0.66 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | 1.7 | <1.0 | 2.1 | -- | 13 |
| Potassium | ug/l | -- | mg/L | -- | -- | 1900 | 1400 | 2600 | -- | 8600 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 9000 | 5200 | 7100 | -- | 18000 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.10 | <0.10 | <0.10 | -- | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | -- | 25000 | 18000 | 46000 | -- | 7700 |
| Strontium | ug/l | -- | mg/L | -- | -- | 110 | 100 | 170 | -- | 66 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 6400 | 3900 | 6300 | -- | 2400 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.050 | <0.050 | <0.050 | -- | 0.087 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | 37 | 28 | 63 | -- | 700 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 2.5 | 2.3 | 3.6 | -- | 19 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | 5.1 | 17 | 6.3 | -- | 44 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1.0 | <1.0 | 1.5 | -- | 11 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 12430 | 10910 | 7230 | -- | 13000 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 432 | 314 | 550 | -- | 174 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 6.94 | 8.13 | 7.90 | -- | 7.91 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 12.2 | 0.02 | 9.5 | -- | 4.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|-----------------------------|-------------|-------------|-------------|-------------|
| | | | | | 08-Dec-2014 | 14-May-2015 ⁽³⁰⁾ | 18-Aug-2015 | 30-Sep-2015 | 20-Nov-2015 | 15-Jun-2016 |
| | | | | | S-2 | S-2 | S-2 | S2 | S2 | S2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 92000 | 190000 | -- | 95000 | 177 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <0.83 | <1.47 | -- | <0.26 | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | <50 | <50 | -- | <50 | 0.09 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | <2000 | <2000 | -- | <2000 | 5 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 35000 | 13000 | -- | 42000 | < 5 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 26000 | 67000 | -- | 28000 | 35.7 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | 468 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 15000 | 7100 | -- | 14000 | 7.9 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 94000 | 160000 | -- | 120000 | 132 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | <500 | 160 | -- | 2010 | 0.4 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | <50 | 19 | -- | 14 | < 0.1 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 480 | 370 | -- | 2100 | 0.72 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | <500 | 170 | -- | 2030 | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 34 | 73 | 170 | 180 | 170 | 0.18 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 2000 | 16000 | -- | 11000 | 13 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 176000 | 348000 | -- | 252000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | 1.97 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 97 | 12 | -- | 100 | 0.03 |
| Barium | ug/l | -- | mg/L | -- | -- | 19 | 38 | -- | 34 | 0.026 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.50 | <0.50 | -- | <0.50 | < 0.002 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | 17 | 82 | -- | 22 | 0.067 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.10 | <0.10 | -- | <0.10 | < 0.00002 |
| Calcium | ug/l | -- | mg/L | -- | -- | 23000 | 49000 | -- | 31000 | 38.2 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <5.0 | <5.0 | -- | <5.0 | < 0.002 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | <0.50 | 0.69 | -- | 0.52 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 1.3 | 2.9 | -- | 2.6 | 0.0012 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1300 | 1200 | 1700 | 940 | 1500 | 0.089 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <0.50 | 0.51 | -- | 0.54 | < 0.00002 |
| Magnesium | ug/l | -- | mg/L | -- | -- | 6600 | 13000 | -- | 9400 | 11.1 |
| Manganese | ug/l | -- | mg/L | -- | -- | 63 | 160 | -- | 72 | 0.136 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | -- | <0.1 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <0.50 | <0.50 | -- | <0.50 | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | 1.0 | 2.6 | -- | 2.1 | 0.0022 |
| Potassium | ug/l | -- | mg/L | -- | -- | 1300 | 3400 | -- | 3700 | 2.1 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 5000 | 8200 | -- | 8100 | 4.89 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.10 | 0.21 | -- | <0.10 | < 0.00002 |
| Sodium | ug/l | -- | mg/L | -- | -- | 18000 | 60000 | -- | 20000 | 44.1 |
| Strontium | ug/l | -- | mg/L | -- | -- | 74 | 190 | -- | 110 | 0.171 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 2600 | 4500 | -- | 3800 | 4.2 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.050 | <0.050 | -- | <0.050 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | 18 | 47 | -- | 50 | < 0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 1.7 | 3.6 | -- | 2.6 | 0.0016 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | <5.0 | <5.0 | -- | 6.3 | < 0.005 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1.0 | <1.0 | -- | <1.0 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 10990 | 10860 | 11060 | 10200 | 7.99 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 381 | 409 | 370 | 651 | 460 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 7.94 | 7.89 | 7.90 | 7.59 | 7.5 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 10.5 | 19.8 | 16.2 | 6.1 | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|--------------|---------------|---------------|--------------|-------------|-------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 22-Aug-2016 | 13-Oct-2016 | 01-May-2017 | 20-Sep-2017 | 06-Nov-2017 | 30-Apr-2018 |
| | | | | | S-2 | S-2 | S-2 | S-2 | S-2 | S-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 158 | 226 | 53 | 159 | 54 | 69 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.11 | < 0.01 | 0.24 | 0.05 | 0.03 | 0.04 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | < 3 | 5 | < 3 | < 3 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | < 5 | 13 | 59 | 27 | 57 | 76 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 42.2 | 64.7 | 10.2 | 27.9 | 9.6 | 20.7 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 470 | 637 | 210 | 444 | 173 | 242 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 10 | 7.2 | 12 | 9.6 | 19.4 | 12.4 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 130 | 152 | 107 | 148 | 69 | 96 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.2 | 0.3 | 0.93 | 0.3 | 1.02 | 0.69 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.1 | < 0.1 | < 0.05 | < 0.1 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.8 | 1.68 | 1.81 | 0.5 | 0.9 | 0.6 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.17 | 0.12 | 0.61 | 0.12 | 0.17 | 0.12 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 23 | 15 | 6 | 9 | 7 | 7 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | 111 | 232 | 87 | 120 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.46 | 0.31 | 8.42 | 0.85 | 1.51 | 0.95 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.02 | 0.08 | 0.03 | 0.25 | 0.13 |
| Barium | ug/l | -- | mg/L | -- | 0.033 | 0.027 | 0.096 | 0.044 | 0.031 | 0.034 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.06 | 0.08 | 0.016 | 0.068 | 0.01 | 0.012 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.00002 | < 0.00002 | 0.000257 | < 0.000014 | 0.000081 | 0.000018 |
| Calcium | ug/l | -- | mg/L | -- | 36.7 | 41.8 | 26.3 | 43 | 18.5 | 25.5 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.002 | 0.002 | 0.017 | 0.002 | 0.004 | 0.003 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0005 | 0.0012 | 0.0044 | 0.0007 | 0.0008 | 0.0007 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0028 | 0.002 | 0.0144 | 0.0025 | 0.0072 | 0.0029 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.894 | 0.658 | 12.4 | 1.72 | 1.92 | 1.27 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.0005 | 0.00016 | 0.00481 | 0.00039 | 0.00137 | 0.00079 |
| Magnesium | ug/l | -- | mg/L | -- | 9.35 | 11.6 | 10 | 12.1 | 5.73 | 7.88 |
| Manganese | ug/l | -- | mg/L | -- | 0.11 | 0.065 | 0.293 | 0.088 | 0.06 | 0.063 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0004 | 0.0003 | 0.0004 | 0.0003 | 0.0004 | 0.0004 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0019 | 0.0018 | 0.0118 | 0.0027 | 0.0044 | 0.0024 |
| Potassium | ug/l | -- | mg/L | -- | 4 | 3.6 | 4 | 2.8 | 2.4 | 1.9 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5.69 | 5.17 | 16 | 7.72 | 6.43 | 4.89 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium | ug/l | -- | mg/L | -- | 43.3 | 65.3 | 9.2 | 41.1 | 9.8 | 14.1 |
| Strontium | ug/l | -- | mg/L | -- | 0.146 | 0.19 | 0.097 | 0.189 | 0.068 | 0.11 |
| Sulfur | ug/l | -- | mg/L | -- | 7.9 | 4.5 | 2.2 | 3.3 | 2.7 | 2.4 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | 0.00009 | < 0.00005 | < 0.00005 | 0.00022 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.019 | 0.015 | 0.609 | 0.051 | 0.076 | 0.043 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0035 | 0.0012 | 0.015 | 0.0028 | 0.0031 | 0.0035 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | < 0.005 | 0.143 | 0.094 | 0.017 | 0.022 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8.45 | 7.74 | 9.96 | 6.96 | 6.96 | 7.06 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 468 | 629 | 157 | 391 | 158 | 190 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.6 | 8.1 | 7.6 | 7.8 | 7.6 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 17.4 | 10.4 | 6.6 | 17 | 9.9 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S2 | S2 | S2 | S2 | S2 | S2 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|-------------|--------------|---------------|---------------|--------------|---------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 20-Aug-2018 | 05-Nov-2018 | 25-April-2019 | 24-Sept-2019 | 31-Oct-2019 | 25-May-2020 |
| | | | | | S-2 | S-2 | S-2 | S-2 | S-2 | S-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 148 | 84 | 45 | 93 | 116 | 114 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | < 0.01 | 0.002 | < 0.01 | < 0.01 | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.05 | 0.05 | 0.12 | 0.05 | 0.03 | 0.03 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | 4 | < 3 | < 3 | | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 28 | 46 | 47 | 41 | | 28 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 48.9 | 33.8 | 16.9 | 17.2 | 87.3 | 38.6 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 457 | 327 | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9 | 12 | 15 | 14.8 | 7.6 | 10.9 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 155 | 123 | 51 | 2 | 181 | 131 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.26 | 1.25 | 0.78 | 0.22 | -- | 0.13 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | < 0.05 | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.5 | 0.6 | 1 | 1 | -- | < 0.1 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.09 | 0.07 | 0.25 | 0.27 | 0.060 | 0.040 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 13 | 14 | 5 | 23 | -- | 8 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 242 | 164 | 79 | 165 | 302 | 190 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.47 | 0.32 | 2.41 | 0.89 | -- | 0.2 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | 0.12 | 0.18 | 0.60 | -- | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 0.03 | 0.036 | 0.033 | 0.036 | -- | 0.027 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.001 | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.042 | 0.012 | 0.011 | 0.03 | 0.011 | 0.014 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000015 | 0.000018 | 0.000081 | 0.000048 | -- | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 39 | 32.9 | 16 | 37.5 | 51 | 36.5 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <0.001 | 0.001 | 0.006 | 0.003 | -- | < 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0002 | 0.0003 | 0.0014 | 0.0008 | -- | 0.0004 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0013 | 0.0015 | 0.0049 | 0.0067 | -- | 0.0016 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.08 | 0.916 | 3.13 | 1.53 | 0.627 | 0.897 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00003 | 0.0002 | 0.0014 | 0.00083 | -- | 0.00013 |
| Magnesium | ug/l | -- | mg/L | -- | 10.1 | 9.82 | 16 | 8.89 | 13 | 9.75 |
| Manganese | ug/l | -- | mg/L | -- | 0.091 | 0.052 | 0.079 | 0.107 | 0.047 | 0.11 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | -- | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0004 | 0.0002 | 0.0003 | 0.0005 | -- | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0009 | 0.0012 | 0.004 | 0.0033 | -- | 0.0014 |
| Potassium | ug/l | -- | mg/L | -- | 2.2 | 1.5 | 2.1 | 6.3 | -- | 1.8 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6.49 | 5.97 | 5.91 | 6.01 | -- | 4.5 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | -- | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 38.9 | 20.8 | 10.2 | 15.2 | 48.4 | 26.3 |
| Strontium | ug/l | -- | mg/L | -- | 0.153 | 0.138 | 0.057 | 0.141 | -- | 0.122 |
| Sulfur | ug/l | -- | mg/L | -- | 4.3 | 4.4 | 1.8 | 10.1 | -- | 3.1 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | -- | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.029 | 0.015 | 0.167 | 0.059 | -- | 0.011 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0018 | 0.0014 | 0.0053 | 0.0042 | -- | 0.0014 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.028 | 0.016 | 0.021 | 0.012 | -- | < 0.005 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | 0.002 | < 0.002 | < 0.002 | < 0.002 | -- | < 0.002 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 7.57 | 12.1 | 7.0 | 9.1 | 11.1 | 9.8 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 367 | 259 | 175 | 326 | 240 | 401 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.8 | 7.3 | 8.0 | 7.88 | 7.6 | 7.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 19 | 4.1 | 5.4 | 15.1 | 10.0 | 15.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S2 | S2 | S2 | | S2 | S2 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|---------------|--------------|--------------|--------|--------------|-------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 29-Jul-2020 | 3-Nov-2020 | 3-Nov-2020 | | 25-May-21 | 16-Aug-21 |
| | | | | | S-2 | S-2 | S-2 | | S-2 | S-2 |
| | | | | | | | Dup #2 | RDP | | |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 184 | 106 | 105 | 0.95% | 138 | 146 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | 0.01 | 0.01 | 0.00% | 0.001 | 0.0008 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.13 | 0.17 | 0.15 | 12.50% | 0.05 | 0.05 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | < 3 | < 3 | 0.00% | <3 | <3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 36 | 12 | 13 | 8.00% | 22 | 15 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 45.4 | 48 | 47.9 | 0.21% | 38.5 | 37.6 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 14.3 | 9.2 | 8.9 | 3.31% | 8.4 | 7.7 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 231 | 146 | 149 | 2.03% | 147 | 156 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.42 | 1.02 | 1.02 | 0.00% | 0.28 | 0.12 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | 0.00% | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1.1 | 0.7 | 0.6 | 15.38% | 0.5 | 0.4 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.330 | 0.060 | 0.050 | 18.18% | 0.05 | 0.05 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 21 | 17 | 17 | 0.00% | 10 | 13 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 306 | 207 | 207 | 0.00% | 216 | 222 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 4.92 | 0.31 | 0.33 | 6.25% | 0.09 | 0.49 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.06 | 0.06 | 0.05 | 18.18% | 0.03 | 0.03 |
| Barium | ug/l | -- | mg/L | -- | 0.09 | 0.028 | 0.027 | 3.64% | 0.024 | 0.03 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | 0.0001 | < 0.0001 | < 0.0001 | 0.00% | <0.0001 | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.125 | 0.012 | 0.011 | 8.70% | 0.018 | 0.02 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000042 | 0.000017 | < 0.000015 | 12.50% | <0.000015 | <0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 69.1 | 38.3 | 38.2 | 0.26% | 40.4 | 44.9 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.01 | 0.001 | 0.001 | 0.00% | <0.001 | <0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0029 | 0.0003 | 0.0003 | 0.00% | 0.0003 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0073 | 0.0016 | 0.0015 | 6.45% | 0.0012 | 0.0009 |
| Iron | ug/l | 300 | mg/L | 0.3 | 6.65 | 0.672 | 0.686 | 2.06% | 0.554 | 1.05 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00156 | 0.00014 | 0.00016 | 13.33% | 0.00006 | 0.0001 |
| Magnesium | ug/l | -- | mg/L | -- | 19.7 | 10.3 | 10.4 | 0.97% | 11.1 | 10.8 |
| Manganese | ug/l | -- | mg/L | -- | 0.761 | 0.069 | 0.068 | 1.46% | 0.099 | 0.122 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | 0.00% | < 0.00002 | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0002 | 0.0003 | 0.0003 | 0.00% | 0.0003 | 0.0002 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0075 | 0.001 | 0.0011 | 9.52% | 0.0009 | 0.0004 |
| Potassium | ug/l | -- | mg/L | -- | 3.9 | 2 | 2 | 0.00% | 1.8 | 1.9 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 13.4 | 5.5 | 5.49 | 0.18% | 4.58 | 6.57 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.00% | < 0.0001 | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 29 | 27 | 26.9 | 0.37% | 21.9 | 24 |
| Strontium | ug/l | -- | mg/L | -- | 0.324 | 0.121 | 0.121 | 0.00% | 0.143 | 0.164 |
| Sulfur | ug/l | -- | mg/L | -- | 6.4 | 5.3 | 5.2 | 1.90% | 3.5 | 5.3 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | 0.00% | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.338 | 0.015 | 0.016 | 6.45% | < 0.005 | 0.031 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0092 | 0.0013 | 0.0012 | 8.00% | 0.0009 | 0.0001 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.03 | < 0.005 | < 0.005 | 0.00% | 0.014 | 0.016 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | < 0.002 | < 0.002 | < 0.002 | 0.00% | <0.002 | <0.002 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6 | 16.2 | -- | -- | 9.9 | 15 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 485 | 435 | -- | -- | 402 | 470 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.9 | 9.4 | -- | -- | 7.98 | 7.8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 17.6 | 1.2 | -- | -- | 15.1 | 15.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | S2 | S2 | S2 | S2 | | |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-----------|-----------|-----------|-----------|------------|------------|--------|------------|
| | | | | | 10-Nov-21 | 10-Nov-21 | 30-May-22 | 27-Jul-22 | 27-Jul-22 | 25-Oct-22 | | |
| | | | | | S-2 | S-2 | S-2 | S-2 | S-2 | S-2 | | |
| | | | | | Dup #1 | RPD | | S-2 | Dup #1 | RPD | | |
| General Chemistry | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 116 | 117 | 0.86% | 86 | 162 | 163 | 0.86% | 129 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0005 | 0.0004 | 22.22% | < 0.01 | < 0.01 | < 0.01 | NC | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.05 | 0.04 | 22.22% | 0.03 | 0.04 | 0.04 | 22.22% | 0.02 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | <3 | NC | -- | < 3 | < 3 | NC | 17 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 32 | 31 | 3.17% | 42 | 18 | 19 | 3.17% | 28 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 56.7 | 56.7 | 0.00% | 32 | 34.2 | 34.4 | 0.00% | 41.1 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | 305 | 476 | 476 | -- | 434 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9.6 | 9.8 | 2.06% | 32.3 | 9.9 | 9.3 | 2.06% | 5.9 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 149 | 155 | 3.95% | 110 | 182 | 187 | 3.95% | 161 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.82 | 0.82 | 0.00% | 0.93 | 0.48 | 0.49 | 0.00% | 0.34 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <0.05 | <0.05 | NC | < 0.05 | < 0.05 | < 0.05 | NC | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.5 | 0.5 | 0.00% | 0.8 | 0.5 | 0.5 | 0.00% | 0.3 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.03 | 0.03 | 0.00% | 0.06 | 0.07 | 0.07 | 0.00% | 0.03 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 16 | 16 | 0.00% | 4.2 | 22 | 22 | 0.00% | 18 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 239 | 239 | 0.00% | 155 | 251 | 251 | 0.00% | 224 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.24 | 0.2 | 18.18% | 0.35 | 0.23 | 0.25 | 18.18% | 0.19 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | 0.04 | 0.00% | -- | 0.04 | 0.04 | 0.00% | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 0.029 | 0.03 | 3.39% | 0.025 | 0.027 | 0.027 | 3.39% | 0.029 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.0001 | <0.0001 | NC | < 0.0001 | < 0.0001 | < 0.0001 | NC | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.02 | 0.022 | 9.52% | 0.009 | 0.021 | 0.021 | 9.52% | 0.015 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | <0.000015 | NC | 0.000019 | < 0.000015 | < 0.000015 | NC | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 41.1 | 42.8 | 4.05% | 30.1 | 52 | 53.3 | 4.05% | 46.8 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <0.001 | <0.001 | NC | 0.001 | 0.001 | 0.001 | NC | < 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0004 | 0.0004 | 0.00% | 0.0003 | 0.0003 | 0.0003 | 0.00% | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0013 | 0.0012 | 8.00% | 0.0018 | 0.0015 | 0.0015 | 8.00% | 0.0013 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.727 | 0.739 | 1.64% | 1.29 | 0.756 | 0.781 | 1.64% | 0.479 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00011 | 0.00011 | 0.00% | 0.00029 | 0.00013 | 0.00013 | 0.00% | 0.0001 |
| Magnesium | ug/l | -- | mg/L | -- | 11.3 | 11.7 | 3.48% | 8.34 | 12.7 | 13.1 | 3.48% | 11.9 |
| Manganese | ug/l | -- | mg/L | -- | 0.094 | 0.098 | 4.17% | 0.038 | 0.113 | 0.115 | 4.17% | 0.026 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.00002 | <0.00002 | NC | < 0.00002 | < 0.00002 | < 0.00002 | NC | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0003 | 0.0003 | 0.00% | 0.0002 | 0.0002 | 0.0002 | 0.00% | 0.0002 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0009 | 0.0009 | 0.00% | 0.0016 | 0.0013 | 0.0015 | 0.00% | 0.0012 |
| Potassium | ug/l | -- | mg/L | -- | 2.1 | 2.1 | 0.00% | 1.5 | 2.1 | 2.2 | 0.00% | 2.4 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6.01 | 6.23 | 3.59% | 5.96 | 6.19 | 6.39 | 3.59% | 6.13 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.0001 | <0.0001 | NC | < 0.0001 | < 0.0001 | < 0.0001 | NC | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 29.5 | 30.7 | 3.99% | 19.3 | 26.3 | 27 | 3.99% | 24.9 |
| Strontium | ug/l | -- | mg/L | -- | 0.145 | 0.149 | 2.72% | 0.111 | 0.231 | 0.235 | 2.72% | 0.153 |
| Sulfur | ug/l | -- | mg/L | -- | 5.5 | 5.7 | 3.57% | 4.2 | 7.1 | 7.2 | 3.57% | 5.8 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.00005 | <0.00005 | NC | < 0.00005 | < 0.00005 | < 0.00005 | NC | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.012 | 0.011 | 8.70% | 0.014 | 0.014 | 0.015 | 8.70% | 0.012 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0012 | 0.0011 | 8.70% | 0.0017 | 0.0015 | 0.0014 | 8.70% | 0.0011 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.017 | <0.005 | NC | < 0.005 | 0.005 | < 0.005 | NC | < 0.005 |
| Phenols | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <0.002 | <0.002 | NC | < 0.001 | < 0.001 | < 0.001 | NC | < 0.001 |
| Field Measurements | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 15.1 | -- | -- | 9.6 | 8.4 | 8.4 | -- | 8.6 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 454 | -- | -- | 310 | 470 | 470 | -- | 390 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.8 | -- | -- | 7.5 | 8.1 | 8.1 | -- | 8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 7.3 | -- | -- | 16.5 | 19.1 | 19.1 | -- | 13.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S2 | S2 | | S2 | S2 | | S2 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-------------|-------------|--------|-------------|-------------|--------|--------------|
| | | | | | 03-May-2023 | 03-May-2023 | | 15-Aug-2023 | 15-Aug-2023 | | 29-Sept-2023 |
| | | | | | S-2 | S-2 | RPD | S-2 | S-2 | RPD | S-2 |
| | | | | | Dup #1 | RPD | | Dup #3 | RPD | | |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 49 | 47 | 4.17% | 105 | 105 | 0.00% | 159 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | < 0.01 | NC | <0.01 | <0.01 | <0.01 | <0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | < 0.01 | < 0.01 | NC | 0.06 | 0.06 | 0.00% | <0.05 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3 | 3 | 0.00% | 4 | 3 | 28.57% | <3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 49 | 41 | 17.78% | 93 | 62 | 40.00% | 16 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 18.4 | 18.9 | 2.68% | 39.3 | 39.6 | 0.76% | 38.2 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- | 450 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 15.6 | 23.2 | 39.18% | 34.0 | 30.6 | 10.53% | 14.2 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 60 | 61 | 1.65% | 116 | 124 | 6.67% | 162 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1.57 | 1.52 | 3.24% | 0.56 | 0.56 | 0.00% | 1.03 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | NC | <0.05 | <0.05 | NC | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.9 | 1.0 | 10.53% | 0.9 | 0.9 | 0.00% | 0.3 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.14 | 0.17 | 19.35% | 0.08 | 0.08 | 0.00% | 0.05 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 9 | 9 | 0.00% | 13 | 13 | 0.00% | 25 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 87 | 87 | 0.00% | -- | -- | -- | 227 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 1.99 | 2.01 | 1.00% | 0.33 | 0.36 | 8.70% | 0.27 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.18 | 0.19 | 5.41% | 0.13 | 0.13 | 0.00% | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 0.028 | 0.029 | 3.51% | 0.029 | 0.031 | 6.67% | 0.030 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | < 0.0001 | NC | <0.0001 | <0.0001 | NC | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.009 | 0.008 | 11.76% | 0.014 | 0.013 | 7.41% | 0.021 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | < 0.000015 | 0.000044 | NC | 0.000027 | 0.000031 | 13.79% | <0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 15.3 | 16.0 | 4.47% | 32.5 | 34.8 | 6.84% | 45.3 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.006 | 0.007 | 15.38% | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0013 | 0.0014 | 7.41% | 0.0003 | 0.0003 | 0.00% | 0.0004 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0041 | 0.0041 | 0.00% | 0.0023 | 0.0024 | 4.26% | 0.0019 |
| Iron | ug/l | 300 | mg/L | 0.3 | 2.17 | 2.19 | 0.92% | 1.36 | 1.46 | 7.09% | 0.833 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00134 | 0.00134 | 0.00% | 0.00027 | 0.00029 | 7.14% | 0.00015 |
| Magnesium | ug/l | -- | mg/L | -- | 4.93 | 5.09 | 3.19% | 8.47 | 9.07 | 6.84% | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.066 | 0.067 | 1.50% | 0.060 | 0.063 | 4.88% | 0.094 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | NC | <0.00002 | <0.00002 | NC | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0002 | 0.0002 | 0.00% | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0034 | 0.0035 | 2.90% | 0.0019 | 0.0019 | 0.00% | 0.0013 |
| Potassium | ug/l | -- | mg/L | -- | 1.6 | 1.7 | 6.06% | 1.7 | 1.8 | 5.71% | 1.8 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5.80 | 5.90 | 1.71% | 5.99 | 6.44 | 7.24% | 6.30 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | < 0.0001 | NC | <0.0001 | <0.0001 | NC | <0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 10.5 | 10.9 | 3.74% | 21.3 | 22.6 | 5.92% | 21.3 |
| Strontium | ug/l | -- | mg/L | -- | 0.064 | 0.066 | 3.08% | 0.120 | 0.129 | 7.23% | 0.190 |
| Sulfur | ug/l | -- | mg/L | -- | 2.3 | 2.3 | 0.00% | 4.15 | 4.50 | 8.09% | 8.11 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | NC | <0.00005 | <0.00005 | NC | <0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.110 | 0.109 | 0.91% | 0.015 | 0.016 | 6.45% | 0.019 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0049 | 0.0050 | 2.02% | 0.0016 | 0.0016 | 0.00% | 0.0012 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.013 | 0.012 | 8.00% | <0.005 | 0.005 | NC | <0.005 |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | < 0.001 | NC | <0.001 | <0.001 | NC | <0.001 |
| Field Measurements | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 7.0 | -- | -- | 15.0 | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 350 | -- | -- | 310 | -- | -- | 406 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.64 | -- | -- | 7.66 | -- | -- | 8.29 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 7.6 | -- | -- | 16.9 | -- | -- | 13.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S3 | S3 | S3 | S3 | S3 | S3 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|----------------------------|----------------------------|------------------------------|-----------------------------|----------------------------|
| | | | | | 30-Apr-2018 | 20-Aug-2018 ⁽²⁾ | 05-Nov-2018 ⁽²⁾ | 25-April-2019 ⁽²⁾ | 24-Sept-2019 ⁽²⁾ | 31-Oct-2019 ⁽²⁾ |
| | | | | | S-3 | S-3 | S-3 | S-3 | S-3 | S-3 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 70 | -- | -- | -- | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0004 | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.12 | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 51 | -- | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 2.3 | -- | -- | -- | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 186 | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 4.5 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 79 | -- | -- | -- | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.14 | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <0.05 | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.4 | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.05 | -- | -- | -- | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 22 | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 103 | -- | -- | -- | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.07 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | -- | -- | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | 0.018 | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.002 | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.037 | -- | -- | -- | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 27 | -- | -- | -- | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <0.001 | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.001 | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0004 | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 2.59 | -- | -- | -- | -- | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00017 | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 2.89 | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.248 | -- | -- | -- | -- | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.00002 | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.0001 | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0014 | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | 1.2 | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.46 | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.00002 | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 12.3 | -- | -- | -- | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | 0.091 | -- | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | 6.8 | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | 0.00021 | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <0.005 | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0005 | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 0.008 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <0.001 | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 4.05 | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 174 | -- | -- | -- | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.2 | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 9 | -- | -- | -- | -- | -- |

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S3 | S3 | S3 | S3 | S3 | S3 | S3 | S3 | |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|----------------------------|----------------------------|---------------------------|----------------------------|----------------------------|----------------------------|-------------|--------------|-------------|
| | | | | | 25-May-2020 ⁽²⁾ | 29-Jul-2020 ⁽²⁾ | 3-Nov-2020 ⁽²⁾ | 25-May-2021 ⁽²⁾ | 16-Aug-2021 ⁽²⁾ | 10-Nov-2021 ⁽³⁾ | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | | | S-3 | S-3 | S-3 | S-3 | S-3 | S-3 | S-3 | S-3 | S-3 |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- | -- | -- | |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Metals | | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sodium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Field Measurements | | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| pH (Field) | - | 8.5 | - | 8.5 | -- | -- | -- | -- | -- | -- | -- | -- | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | S3 | S3 | S3 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------|-------------|--------------|
| | | | | | 03-May-2023 | 15-Aug-2023 | 29-Sept-2023 |
| | | | | | S-3 | S-3 | S-3 |
| | | | | | DRY | | DRY |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 11 | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0001 | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.01 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 8 | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 1.6 | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 4.0 | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 15 | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.07 | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.5 | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.08 | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7 | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 22 | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 0.04 | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.08 | -- | -- |
| Barium | ug/l | -- | mg/L | -- | 0.007 | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.006 | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | < 0.000015 | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 5.1 | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | < 0.001 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0003 | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0006 | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.382 | -- | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00008 | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 0.83 | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.022 | -- | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | < 0.0001 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | < 0.0002 | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | 0.6 | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.63 | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 2.5 | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | 0.027 | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | 1.9 | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | < 0.005 | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0003 | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | < 0.005 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | -- | -- |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6.5 | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 70 | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.60 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | deg c | -- ⁽⁸⁾ | 8.5 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 29-Apr-1992 | GS6 06-Sep-1992 | GS6 28-Nov-1992 | GS6 04-May-1993 ⁽⁴⁾ | GS6 29-Aug-1993 ⁽⁴⁾ | GS6 11-Nov-1993 ⁽⁴⁾ |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------------|--------------------|--------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 44000 | 98000 | 76000 | -- | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <100 | <100 | 30 | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <1000 | 2000 | 2000 | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 33000 | 23000 | 43000 | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 1000 | 4000 | 6000 | -- | -- | -- |
| Color | color unit | -- | color unit | -- | 144 | 50 | 191 | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 57000 | 95000 | 75000 | -- | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 200 | <100 | 310 | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 550 | 580 | 390 | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | 550 | 580 | 360 | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 100 | 120 | <30 | -- | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 12000 | 9000 | 9000 | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 90000 | 130000 | 130000 | -- | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | 14700 | 8500 | 16000 | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | 5000 | 58000 | 18000 | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | 3.8 | 13 | 4.2 | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 670 | 840 | 510 | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | 30 | 40 | 20 | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 20 | <10 | <10 | -- | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.2 | <0.15 | 2.11 | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 13000 | 25000 | 20000 | -- | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | 20 | <10 | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <10 | <10 | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <5 | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 800 | 1690 | 1000 | -- | -- | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | 5 | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 6000 | 8000 | 6000 | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 100 | 190 | 100 | -- | -- | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.2 | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | <1000 | 2000 | 2000 | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | <1 | <1 | <1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 3500 | 6700 | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 3000 | 6000 | 5000 | -- | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | <10 | 90 | 70 | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | 5000 | 3000 | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <50 | <50 | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | <50 | -- | <50 | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 30 | <10 | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 10 | <10 | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | 10 | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 10600 | 9400 | 12300 | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 150 | 230 | 150 | -- | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.4 | 7.2 | 7 | -- | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 12 | 7.5 | 2.5 | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 04-Jun-1994 | GS6 07-Sep-1994 | GS6 24-Nov-1994 (4) | GS6 28-May-1995 | GS6 11-Sep-1995 | GS6 07-Nov-1995 |
|----------------------------------|--------------------------|-----------------|-------------------------|-------------------|--------------------|--------------------|------------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(6) | mg/L | --(6) | 72000 | 119000 | -- | 88000 | 125000 | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | -- | <20 | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 280 | 40 | -- | 60 | 40 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | <1000 | -- | <1000 | 3000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 48000 | 18000 | -- | 26000 | 18000 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 9000 | 10000 | -- | 7000 | 10000 | 5000 |
| Color | color unit | -- | color unit | -- | 60 | 26 | -- | 72 | 14 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 13800 | 7000 | -- | 11200 | 8100 | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 83000 | 154000 | -- | 103000 | 131000 | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 1500 | 40 | -- | 40 | 70 | 50 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 100000 | 170000 | -- | 128000 | 188000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(9) | ntu | --(9) | >100 | 13 | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | --(10) | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | 60 | 40 | -- | 410 | 580 | -- |
| Barium | ug/l | -- | mg/L | -- | 20 | 20 | -- | 20 | 30 | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | <10 | <10 | -- | <10 | <10 | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | <10 | 10 | -- | 20 | 20 | -- |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | 0.21 | <0.15 | -- | <0.15 | <0.15 | -- |
| Calcium | ug/l | -- | mg/L | -- | 20000 | 45000 | -- | 28000 | 36000 | -- |
| Chromium | ug/l | --(14) | mg/L | 14 | 70 | <10 | -- | <10 | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 2 | <0.4 | -- | <0.4 | 0.4 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | -- | <5 | <5 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 720 | 1220 | -- | 1330 | 1220 | 1110 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | 4 | <2 | -- | <2 | <2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | 8000 | 10000 | -- | 8000 | 10000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 710 | 110 | -- | 90 | 80 | -- |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | <0.2 | <0.2 | -- | <0.2 | <0.2 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | -- | <10 | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | -- | <10 | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | 2000 | 1000 | -- | 1000 | 2000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5800 | 4100 | -- | 5000 | 5400 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | 0.4 | -- | <0.1 | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 6000 | 4000 | -- | 6000 | 10000 | -- |
| Strontium | ug/l | -- | mg/L | -- | 70 | 128 | -- | 93 | 152 | -- |
| Sulfur | ug/l | -- | mg/L | -- | <3000 | 7000 | -- | 5000 | 8000 | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | <5 | <5 | -- | <10 | <5 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | <50 | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | 20 | -- | <10 | 30 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | <7 | -- | <7 | <7 | -- |
| Zinc | ug/l | 30 (13) | mg/L | 0.03 (13) | <10 | <10 | -- | <10 | <10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | <1 | <1 | -- | <1 | <1 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(6) | mg/L | --(6) | 2300 | 9100 | -- | 10200 | --(23) | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 160 | 240 | -- | 195 | 290 | 190 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.1 | 7.5 | -- | 7 | 7.7 | 8.4 |
| Temperature (Field) | deg c | --(6) | deg c | --(6) | 17.5 | 12 | -- | 15 | 13 | 6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 17-Jul-1996 | GS6 22-Nov-1996 | GS6 10-Jun-1997 | GS6 09-Sep-1997 | GS6 06-Apr-1998 | GS6 09-Jun-1998 |
|----------------------------------|--------------------------|-------------------------|-------------------|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 61000 | 80000 | 106000 | 159000 | 38000 | 79000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 30 | 140 | 20 | 120 | 40 | 90 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3000 | 2000 | 5000 | 1000 | 4000 | 1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 27000 | 26000 | 29000 | 21000 | 31000 | 10000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 4000 | 5000 | 10000 | 11000 | 3000 | 6000 |
| Color | color unit | -- | color unit | -- | 40 | 45 | 29 | 22 | 81 | 53 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 10200 | 10000 | 10500 | 9000 | 12000 | 8800 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 72000 | 92000 | 108000 | 157000 | 49000 | 91000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | 120 | 130 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 520 | 730 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 30 | 40 | 60 | 130 | 70 | 70 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 12000 | 19000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 104000 | 128000 | 160000 | 208000 | 76000 | 120000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 350 | 180 | 160 | 240 | 230 | 80 |
| Barium | ug/l | -- | mg/L | -- | 20 | 30 | 20 | 40 | 10 | 10 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | 10 | <10 | <10 | <10 | <10 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 10 | 20 | <10 | <10 | 20 | <10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | ug/l | -- | mg/L | -- | 19000 | 22000 | 30000 | 43000 | 13000 | 25000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | <10 | <10 | <10 | <10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.4 | 1.9 | <0.4 | <0.4 | 1.6 | 0.4 |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | 12 | <5 | <5 | <5 | <5 |
| Iron | ug/l | 300 | mg/L | 0.3 | 780 | 1380 | 690 | 870 | 310 | 910 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesium | ug/l | -- | mg/L | -- | 6000 | 9000 | 8000 | 12000 | 4000 | 7000 |
| Manganese | ug/l | -- | mg/L | -- | 30 | 170 | 90 | 180 | 50 | 40 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | 0.5 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <30 | <30 | <10 | <10 | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | ug/l | -- | mg/L | -- | 1000 | 1000 | 2000 | 4000 | 1000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4300 | 6000 | 4100 | 5200 | 2600 | 3000 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | 0.3 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 5000 | 4000 | 9000 | 14000 | 1000 | 5000 |
| Strontium | ug/l | -- | mg/L | -- | 80 | 82 | 109 | 144 | 47 | 86 |
| Sulfur | ug/l | -- | mg/L | -- | 6000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | <5 | <5 | <5 |
| Tin | ug/l | -- | mg/L | -- | -- | <50 | -- | <50 | <50 | <50 |
| Titanium | ug/l | -- | mg/L | -- | 20 | 10 | <10 | <10 | <10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | <7 | <7 | <7 | <7 | <7 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | <10 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 2 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8200 | 12600 | 9800 | 6600 | 9500 | 7200 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 90 | 120 | 250 | 280 | 100 | 190 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.2 | 7 | 8.2 | 7.3 | 7.04 | 7.55 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 22 | 1.5 | 20 | 16 | 10 | 24.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 25-Jun-1998 | GS6 17-Jul-1998 | GS6 20-Aug-1998 | GS6 26-Sep-1998 | GS6 20-Oct-1998 | GS6 20-Dec-1998 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 74000 | 70000 | 128000 | 102000 | 78000 | 84000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | -- | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 60 | 570 | 40 | -- | 70 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <1000 | 3000 | <1000 | -- | 1000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 56000 | 48000 | 24000 | 18000 | 14000 | 60000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 4000 | 4000 | 12000 | 7000 | 5000 | 5000 |
| Color | color unit | -- | color unit | -- | 105 | 109 | 28 | -- | 114 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 19000 | 17000 | 8200 | 9000 | 16000 | 7800 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 82000 | 80000 | 129000 | 115000 | 95000 | 95000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | -- | <100 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | 230 | <100 | -- | <100 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 970 | 930 | 540 | -- | 740 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 60 | 90 | 90 | 60 | 80 | 80 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7000 | 7000 | 9000 | -- | 9000 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 104000 | 116000 | 184000 | 144000 | 116000 | 132000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 220 | 300 | 330 | 150 | 180 | 40 |
| Barium | ug/l | -- | mg/L | -- | <10 | <10 | 30 | -- | <10 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | <10 | -- | <10 | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <10 | <10 | <10 | -- | <10 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | -- | <0.15 | -- |
| Calcium | ug/l | -- | mg/L | -- | 23000 | 22000 | 35000 | -- | 25000 | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | 10 | -- | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.8 | <0.4 | <0.4 | -- | <0.4 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <5 | -- | <5 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 1580 | 2070 | 1070 | 970 | 1360 | 950 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | -- | <2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | 6000 | 6000 | 10000 | -- | 8000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 60 | 50 | 80 | 50 | 50 | 200 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.2 | -- | <0.2 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | <10 | -- | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | -- | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | 2000 | <1000 | 3000 | -- | 3000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5100 | 5100 | 5000 | -- | 6500 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | -- | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 4000 | 4000 | 10000 | 7000 | 4000 | 5000 |
| Strontium | ug/l | -- | mg/L | -- | 83 | 57 | 123 | 93 | 70 | 81 |
| Sulfur | ug/l | -- | mg/L | -- | 3000 | 3000 | 4000 | -- | 4000 | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | 5 | <5 | -- | <5 | -- |
| Tin | ug/l | -- | mg/L | -- | <50 | <50 | <50 | -- | <50 | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | <10 | <10 | -- | 40 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | <7 | <7 | -- | 10 | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | <10 | -- | 10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | -- | <1 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6700 | 7200 | 9300 | 9300 | 10200 | 13400 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 130 | 210 | 220 | 190 | 260 | 90 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.48 | 6.8 | 6.9 | 6.65 | 7.56 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 24 | 22 | 16 | 11 | 7.5 | -3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 23-Apr-1999 | GS6 26-May-1999 | GS6 25-Jun-1999 | GS6 29-Jul-1999 | GS6 31-Aug-1999 | GS6 30-Sep-1999 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 66000 | 81000 | 164000 | 118000 | 242000 | 73000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <20 | -- | -- | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | <20 | -- | -- | 260 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | 1000 | -- | -- | 10000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 26000 | 29000 | 39000 | 20000 | 25000 | 38000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 6000 | 7000 | 50000 | 53000 | 26000 | 9000 |
| Color | color unit | -- | color unit | -- | -- | 54 | -- | -- | 18 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 10000 | 11400 | 11900 | 11700 | 11400 | 12400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 72000 | 80000 | 179000 | 130000 | 222000 | 94000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 40 | 50 | 90 | 110 | 450 | 70 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 24000 | 104000 | 292000 | 252000 | 292000 | 140000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 340 | 320 | 80 | 50 | <30 | <30 |
| Barium | ug/l | -- | mg/L | -- | -- | 20 | -- | -- | 100 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <10 | -- | -- | <10 | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | <10 | -- | -- | 30 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.15 | -- | -- | <0.15 | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | 22000 | -- | -- | 56000 | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <10 | -- | -- | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | <0.4 | -- | -- | 0.6 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | <5 | -- | -- | <5 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 370 | 370 | 310 | 1610 | 4760 | 810 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <2 | -- | -- | 2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | 6000 | -- | -- | 20000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 60 | 40 | 240 | 90 | 480 | 20 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.2 | -- | -- | <0.2 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <10 | -- | -- | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | <10 | -- | -- | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | 1000 | -- | -- | 6000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 4500 | -- | -- | 14300 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.1 | -- | -- | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 4000 | 4000 | 39000 | 35000 | 29000 | 7000 |
| Strontium | ug/l | -- | mg/L | -- | 63 | 75 | 162 | 123 | 187 | 87 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 3000 | -- | -- | 3000 | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <5 | -- | -- | <5 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | <50 | -- | -- | <50 | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | <10 | -- | -- | <10 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | <7 | -- | -- | <7 | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | 10 | -- | -- | 20 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | <1 | -- | -- | 5 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 10200 | 10500 | 7000 | 8700 | 2100 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 110 | 130 | 480 | 440 | 245 | 210 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.7 | 7.45 | 7.15 | 7.1 | 5.6 | 7.32 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 13.2 | 12 | 18 | 20.5 | 14 | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 27-Oct-1999 ⁽⁹⁾ | GS6 29-Nov-1999 | GS6 21-Dec-1999 ⁽²⁵⁾ | GS6 28-Apr-2000 | GS6 01-Jun-2000 | GS6 29-Jun-2000 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------------|--------------------|------------------------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 50000 | -- | 75000 | 76000 | 60000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 70 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 3000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 35000 | -- | 26000 | 30000 | 73000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 20000 | -- | 18000 | 7000 | 4000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | 90 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 11300 | -- | 9900 | 13300 | 18100 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 74000 | -- | 76000 | 77000 | 68000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | 830 | -- | 50 | 30 | 60 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 120000 | -- | 128000 | 104000 | 116000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 530 | -- | <50 | 160 | 590 |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 90 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | <2 | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | <10 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | <0.1 | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | 18000 | -- | 19000 | 21000 | 19000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | <0.4 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | <10 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | 5660 | -- | 440 | 1120 | 1480 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | <2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | 7000 | -- | 7000 | 6000 | 5000 |
| Manganese | ug/l | -- | mg/L | -- | -- | 240 | -- | 50 | 60 | 80 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | <0.1 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 1000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 4840 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | -- | 12000 | -- | 12000 | 5000 | 4000 |
| Strontium | ug/l | -- | mg/L | -- | -- | 75 | -- | 66 | 68 | 64 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | <1000 | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | <2 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | <10 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | <2 | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | <10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | <1 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- | -- | 2800 | 8400 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 196 | -- | 208 | 300 | 170 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 7.03 | -- | 6.65 | 6.59 | 6.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 2 | -- | -- | 12 | 20 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 30-Jul-2000 | GS6 18-Aug-2000 | GS6 27-Sep-2000 | GS6 30-Oct-2000 | GS6 01-Dec-2000 | GS6 21-Dec-2000 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 115000 | 103000 | 77000 | 91000 | 64000 | 80000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <20 | -- | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | 80 | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | <1000 | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 28000 | 31000 | 30000 | 26000 | 34000 | 19000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 10000 | 7000 | 6000 | 7000 | 6000 | 7000 |
| Color | color unit | -- | color unit | -- | -- | 53 | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9400 | 12500 | 11300 | 8900 | 13400 | 8400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 115000 | 96000 | 89000 | 100000 | 75000 | 81000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 120 | 40 | 80 | 30 | 40 | 60 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 208000 | 176000 | 160000 | 148000 | 84000 | 144000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 340 | 170 | 220 | <50 | 230 | 120 |
| Barium | ug/l | -- | mg/L | -- | -- | 20 | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <2 | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | <10 | -- | -- | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 33000 | 27000 | 24000 | 25000 | 20000 | 21000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <10 | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 0.3 | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 1 | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 900 | 1210 | 1600 | 820 | 1150 | 490 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <1 | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 8000 | 7000 | 7000 | 9000 | 6000 | 7000 |
| Manganese | ug/l | -- | mg/L | -- | 70 | 80 | 90 | 70 | 140 | 170 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <10 | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | <10 | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | 1000 | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 6280 | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.1 | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 10000 | 6000 | 5000 | 6000 | 6000 | 5000 |
| Strontium | ug/l | -- | mg/L | -- | 106 | 83 | 78 | 80 | 67 | 68 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 3000 | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <1 | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | <10 | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 1 | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | <10 | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | <1 | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 7260 | 10440 | 11590 | 12800 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 253 | 198 | 185 | 183 | 220 | 2 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.43 | 7.6 | 7.12 | 7.42 | 6.8 | 8.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 23 | 15.9 | 11.8 | 6.9 | 1 | 0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 30-May-2001 | GS6 10-Aug-2001 (3) | GS6 05-Apr-2002 | GS6 06-Aug-2002 (2B) | GS6 01-Nov-2002 | GS6 12-May-2003 |
|----------------------------------|--------------------------|--------------|-------------------|-------------------|-----------------|---------------------|-----------------|----------------------|-----------------|-----------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(6) | mg/L | --(6) | 76000 | -- | 44000 | -- | 119000 | 81000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | -- | <20 | -- | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 80 | -- | 70 | -- | 30 | 540 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <1000 | -- | 2000 | -- | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 19000 | -- | 29000 | -- | 15000 | 28000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 10000 | -- | 7000 | -- | 32000 | 17000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 11300 | -- | 9600 | -- | 6200 | 11900 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 86000 | -- | 63000 | -- | 145000 | 99000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 790 | -- | 820 | -- | <100 | 610 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | -- | <100 | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 700 | -- | 500 | -- | 330 | 1660 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 60 | -- | 110 | -- | 50 | 40 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 11000 | -- | 20000 | -- | 33000 | 35000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 200000 | -- | 101000 | -- | 253000 | 164000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(9) | ntu | --(9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | --(10) | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | <50 | -- | 140 | -- | <10 | 100 |
| Barium | ug/l | -- | mg/L | -- | 20 | -- | 20 | -- | 30 | 30 |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | <2 | -- | <2 | -- | <1 | <1 |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | <10 | -- | <50 | -- | <50 | <50 |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 23000 | -- | 17000 | -- | 40000 | 28000 |
| Chromium | ug/l | --(14) | mg/L | 14 | <1 | -- | <1 | -- | <1 | 2 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.2 | -- | 0.3 | -- | 0.2 | 0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1 | -- | 1 | -- | 2 | 2 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1160 | -- | 220 | -- | 150 | 650 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | <1 | -- | <1 | -- | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 7000 | -- | 5000 | -- | 11000 | 7000 |
| Manganese | ug/l | -- | mg/L | -- | 90 | -- | 60 | -- | 22 | 90 |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | -- | <10 | -- | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | -- | <10 | -- | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 1000 | -- | <1000 | -- | 2000 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5060 | -- | 4000 | -- | 3800 | 4400 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 6000 | -- | 5000 | -- | 22000 | 10000 |
| Strontium | ug/l | -- | mg/L | -- | 83 | -- | 52 | -- | 120 | 86 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | <1 | -- | <1 | -- | <1 | <1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 30 | -- | <10 | -- | <10 | 20 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1 | -- | 1 | -- | <1 | 3 |
| Zinc | ug/l | 30 (13) | mg/L | 0.03 (13) | <10 | -- | <10 | -- | <5 | <5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | <1 | -- | <1 | -- | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(6) | mg/L | --(6) | 10050 | -- | 12610 | -- | --(23) | 8640 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 481 | -- | 120 | -- | 170 | 180 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.92 | -- | 6.8 | -- | 6.7 | 7.8 |
| Temperature (Field) | deg c | --(6) | deg c | --(6) | 10 | -- | 3 | -- | 12 | 13 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 26-Aug-2003 | GS6 19-Nov-2003 | GS6 26-May-2004 | GS6 28-Aug-2004 | GS6 25-Nov-2004 | GS6 26-May-2005 |
|----------------------------------|--------------------------|-------------------------|-------------------|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 186000 | 61000 | 71000 | 109000 | 67000 | 82000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 40 | 30 | 140 | 50 | <30 | 70 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 1000 | <1000 | <500 | 1400 | 1000 | 2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 15000 | 36000 | 23000 | 61000 | 52000 | 23000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 60000 | 11000 | 6700 | 14500 | 13400 | 12000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 6900 | 13300 | 13400 | 11700 | 15600 | 11100 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 195000 | 75000 | 86000 | 130800 | 90400 | 89000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 100 | 430 | <200 | <200 | 500 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <200 | <200 | <200 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 520 | 560 | 590 | 700 | 630 | 510 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 50 | 200 | 46 | 184 | 49 | 60 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 22000 | 31000 | 7200 | 12500 | 14000 | 10000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 354000 | 124000 | 152000 | 156000 | 170000 | 138000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | 459 | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <10 | 170 | 183 | 4410 | 1440 | 370 |
| Barium | ug/l | -- | mg/L | -- | 40 | 30 | 21 | 68 | 32 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <50 | <10 | 7 | 16 | <5 | 20 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 55000 | 20000 | 23700 | 35300 | 24200 | 24000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 8 | 3 | <5 | 10 | <5 | 2 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.2 | 0.9 | 0.4 | 2.6 | 0.9 | 0.4 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1 | 3 | 3.9 | 7.8 | 2.9 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 620 | 1530 | 1770 | 4620 | 2190 | 920 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | 0.6 | 1.9 | 0.9 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 14000 | 6000 | 6520 | 10300 | 7270 | 7000 |
| Manganese | ug/l | -- | mg/L | -- | 130 | 80 | 66 | 534 | 121 | 60 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <1 | <1 | <1 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | <1 | 6 | 2 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 4000 | 1000 | 1200 | 3600 | 1500 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6300 | 5800 | 5290 | 11100 | 7290 | 4900 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 35000 | 7000 | 5300 | 11200 | 7800 | 8000 |
| Strontium | ug/l | -- | mg/L | -- | 167 | 71 | 70 | 127 | 74 | 81 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | 3000 | 4400 | 5300 | 3300 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <1 | <0.05 | <0.05 | <0.05 | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | 40 | 19 | 218 | 84 | 20 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 3 | 3 | 2.5 | 9.9 | 4.3 | 3 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <5 | 10 | 23 | 24 | 9 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | 3 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6210 | 7610 | 8550 | 6510 | 9090 | 9440 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 170 | 200 | 138 | 210 | 595 | 212 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.6 | 7.4 | 7.83 | 7.4 | 7.1 | 7.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 14 | 2 | 15.6 | 17 | 1 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 26-Aug-2005 | GS6 15-Nov-2005 | GS6 01-Jun-2006 | GS6 06-Sep-2006 | GS6 20-Nov-2006 | GS6 29-May-2007 |
|----------------------------------|--------------------------|-------------------------|-------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 221000 | 77000 | 78000 | 75000 | 61000 | 85000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 1250 | 60 | 30 | 40 | 40 | 30 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 5000 | <1000 | 2000 | <1000 | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 25000 | 38000 | 37000 | 42000 | 40000 | 22000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 28000 | 14000 | 11000 | 19000 | 11000 | 7000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 10800 | 14400 | 14200 | 17200 | 15500 | 10800 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 215000 | 98000 | 82000 | 91000 | 75000 | 94000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 120 | 350 | 170 | 400 | 420 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 2430 | 620 | 530 | 830 | 520 | 490 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 120 | 50 | 30 | 500 | 60 | 50 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 12000 | 13000 | 9000 | 10000 | 9000 | 9000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 344000 | 142000 | 123000 | 151000 | 113000 | 134000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 130 | 180 | 220 | 130 | 210 | 70 |
| Barium | ug/l | -- | mg/L | -- | 70 | 20 | 20 | 30 | 20 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 40 | <10 | <10 | 20 | 20 | 10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 58000 | 26000 | 23000 | 25000 | 20000 | 26000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 6 | 2 | 2 | 3 | 2 | <1 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 1.3 | 0.5 | <0.2 | 0.6 | 0.6 | 0.2 |
| Copper | ug/l | 5 | mg/L | 0.005 | 5 | 2 | 1 | 3 | 1 | 1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1870 | 1050 | 1240 | 1520 | 1340 | 1150 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 1 | <1 | <1 | <1 | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 17000 | 8000 | 6000 | 7000 | 6000 | 7000 |
| Manganese | ug/l | -- | mg/L | -- | 760 | 140 | 30 | 80 | 110 | 60 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <5 | <5 | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | <5 | <5 | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 6000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 9900 | 7200 | 4600 | 7100 | 6300 | 5500 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 26000 | 8000 | 6000 | 11000 | 7000 | 7000 |
| Strontium | ug/l | -- | mg/L | -- | 190 | 69 | 75 | 96 | 57 | 72 |
| Sulfur | ug/l | -- | mg/L | -- | 4000 | 4300 | 3000 | 3300 | 3000 | 3000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.2 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 20 | 20 | <10 | 30 | 20 | 10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 8 | 3 | 2 | 4 | 2 | 2 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | <10 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 2 | <1 | <1 | <1 | <1 | 1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8900 | 7200 | -- | 10880 | 10920 | 9920 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 529 | 220 | 180 | 490 | 395 | 160 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.2 | 7.2 | 7.7 | 7.3 | 7.4 | 8.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 27 | 7.9 | 20 | 9 | 2 | 18.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 23-Aug-2007 | GS6 25-Nov-2007 | GS6 01-May-2008 | GS6 11-Aug-2008 | GS6 04-Nov-2008 | GS6 09-Apr-2009 C-1 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 220000 | 96000 | 44000 | 114000 | 75000 | 48000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 110 | 30 | 50 | 50 | 20 | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | -- | 1000 | 1000 | 1000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 17000 | -- | 37000 | 22000 | 40000 | 27000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 16000 | 12000 | 6000 | 14000 | 13000 | 9000 ⁽²¹⁾ |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 8100 | 9200 | 16200 | 12500 | 16700 | 11200 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 215000 | 109000 | 56000 | 113000 | 82000 | 54000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | -- | 380 | 320 | 390 | 400 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | -- | <100 | <100 | <100 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 760 | -- | 680 | 710 | 400 | 500 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | 400 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 180 | 80 | 20 | 40 | 40 | 71 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 14000 | -- | 9000 | 8000 | 11000 | <5000 ⁽²¹⁾ |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 318000 | 170000 | 83000 | 183000 | 140000 | 82000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 100 | -- | 310 | 70 | 200 | 170 |
| Barium | ug/l | -- | mg/L | -- | 30 | -- | 20 | 30 | 20 | 19 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | -- | <1 | <1 | <1 | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 40 | <10 | 20 | <10 | 20 | 10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 58000 | 29000 | 16000 | 32000 | 23000 | 15000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 3 | -- | 2 | 2 | 2 | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.4 | -- | 0.6 | 0.3 | 0.4 | 0.6 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1 | -- | 2 | 2 | 2 | 1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1500 | 860 | 1060 | 1260 | 1080 | 900 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | -- | <1 | <1 | <1 | 0.5 |
| Magnesium | ug/l | -- | mg/L | -- | 17000 | 9000 | 4000 | 8000 | 6000 | 4400 |
| Manganese | ug/l | -- | mg/L | -- | 650 | 70 | 80 | 110 | 120 | 70 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | -- | <5 | <5 | <5 | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | -- | <5 | <5 | <5 | 1 |
| Potassium | ug/l | -- | mg/L | -- | 3000 | -- | <1000 | 1000 | <1000 | 800 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 11100 | -- | 4900 | 7100 | 7000 | 5000 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 21000 | 9000 | 3000 | 11000 | 8000 | 4400 |
| Strontium | ug/l | -- | mg/L | -- | 156 | -- | 49 | 97 | 62 | 49 |
| Sulfur | ug/l | -- | mg/L | -- | 4700 | -- | 3000 | 3000 | 4000 | 2700 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | -- | 30 | <10 | 20 | 40 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 3 | -- | 3 | 3 | 2 | 4 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | -- | <10 | <10 | <10 | 7 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | -- | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 5200 | 8770 | 10500 | 7400 | 9700 | 11700 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 625 | 200 | 95 | 220 | 190 | 120 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.4 | 7.9 | 7.9 | 8.1 | 7.8 | 7.9 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 17 | 0.3 | 11.7 | 18.4 | 8.3 | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-----------------------|------------------------|-------------|-------------|-------------|-------------|
| | | | | | 05-Aug-2009 | 03-Nov-2009 | 01-Jun-2010 | 13-Aug-2010 | 12-Nov-2010 | 28-Apr-2011 |
| | | | | | GS-6 | GS-6 | SW-3 | L-2 | C-6 | A-7 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 70000 | 75000 | 109000 | 120000 | 86000 | 48000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <50 | <50 | 70 | <50 | <50 | 70 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <2000 | <2000 | <2000 | <2000 | <2000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 42000 | 40000 | 31000 | 33000 | 35000 | 43000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 10000 | <10000 ⁽²¹⁾ | 14000 | 20000 | 8000 | 6000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 20700 | 15400 | 10600 | 9600 | 10800 | 14000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 76000 | 87000 | 120000 | 120000 | 95000 | 54000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 300 | 500 | 100 | 100 | 200 | 400 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 10 | <10 | 20 | 10 | <10 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 900 | 700 | 700 | 800 | 600 | 1000 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 300 | 500 | 200 | 200 | 200 | 400 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 52 | 21 | 76 | 81 | 26 | 290 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | <5000 ⁽²¹⁾ | <10000 ⁽²¹⁾ | 15000 | 6000 | 8000 | <1000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 107000 | 125000 | 176000 | 196000 | 128000 | 68000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 130 | 150 | 35 | 30 | 92 | 190 |
| Barium | ug/l | -- | mg/L | -- | 19 | 20 | 32 | 32 | 18 | 45 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <10 | <10 | 30 | 20 | <10 | 10 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 21000 | 24000 | 39000 | 37000 | 24000 | 18000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | <5 | <5 | <5 | <5 | 11 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 2.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | 10 | 1 | 2 | 2 | 1 | 7 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1500 | 1100 | 1500 | 1800 | 1100 | 4600 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 2.2 |
| Magnesium | ug/l | -- | mg/L | -- | 5300 | 7500 | 11000 | 9800 | 7800 | 5800 |
| Manganese | ug/l | -- | mg/L | -- | 48 | 94 | 170 | 100 | 110 | 110 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <1 | <1 | <1 | <1 | <1 | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <1 | 1 | 2 | 1 | <1 | 6 |
| Potassium | ug/l | -- | mg/L | -- | 1000 | 1200 | 2800 | 2100 | 1000 | 1500 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5800 | 6500 | 6300 | 8000 | 6900 | 8700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 5200 | 7600 | 8500 | 16000 | 6500 | 4400 |
| Strontium | ug/l | -- | mg/L | -- | 65 | 70 | 120 | 110 | 69 | 55 |
| Sulfur | ug/l | -- | mg/L | -- | 2000 | 3100 | 4700 | 2300 | 2800 | 2100 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 23 | 12 | 30 | 41 | 8 | 270 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2 | 2 | 2 | 3 | <1 | 10 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <5 | <5 | 7 | <5 | <5 | 19 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9880 | 11370 | 9370 | 8310 | 8960 | 9070 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 176 | 191 | 303 | 291 | 209 | 133 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.99 | 7.23 | 8.03 | 8.12 | 8.16 | 7.89 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 20.4 | 7.8 | 14.1 | 19.8 | 4.7 | 15 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|----------------------------|
| | | | | | 27-May-2011 | 24-Aug-2011 | 07-Sep-2011 | 07-Nov-2011 | 05-Jun-2012 | 29-Aug-2012 ⁽⁹⁾ |
| | | | | | SW-6 | C-5 | S-6 | L-1 | GS-6 | GS6 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 104000 | -- | 100000 | 53000 | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <20 | -- | <20 | <0.5 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | <50 | -- | <50 | <50 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | <2000 | -- | <2000 | <2000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 21000 | -- | 32000 | 60000 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 14000 | -- | 12000 | 9000 | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 6600 | -- | 7100 | 22000 | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 120000 | -- | 110000 | 65000 | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | <100 | -- | <100 | 620 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | <10 | -- | <10 | <10 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 400 | -- | 400 | 750 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | <100 | -- | <100 | 620 | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 64 | 29 | 50 | 20 | 33 | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 10000 | -- | 10000 | <1000 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 358000 | -- | 150000 | 120000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 18 | -- | 24 | 240 | -- |
| Barium | ug/l | -- | mg/L | -- | -- | 21 | -- | 19 | 21 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.5 | -- | <0.5 | <0.50 | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | 20 | -- | <10 | 26 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | -- | <0.1 | <0.10 | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | 34000 | -- | 31000 | 19000 | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <5 | -- | <5 | <5.0 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | <0.5 | -- | <0.5 | 0.68 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 1 | -- | <1 | 2.8 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 1500 | 400 | -- | 700 | 1700 | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <0.5 | -- | <0.5 | 0.78 | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | 8400 | -- | 9800 | 5500 | -- |
| Manganese | ug/l | -- | mg/L | -- | -- | 29 | -- | 77 | 88 | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | -- | <0.1 | <0.1 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <0.5 | -- | <0.5 | <0.50 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | <1 | -- | <1 | 1.9 | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | 1600 | -- | 1400 | 830 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 5700 | -- | 7100 | 5900 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.1 | -- | <0.1 | <0.10 | -- |
| Sodium | ug/l | -- | mg/L | -- | -- | 9900 | -- | 9000 | 6500 | -- |
| Strontium | ug/l | -- | mg/L | -- | -- | 94 | -- | 95 | 64 | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | 3500 | -- | 3500 | 2300 | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.05 | -- | <0.05 | <0.050 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | 6 | -- | 7 | 41 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 1.7 | -- | 0.6 | 3.8 | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | <5 | -- | <5 | 5.1 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | <1 | -- | 2 | <1.0 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 7460 | -- | 11260 | 849000 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 244 | -- | 291 | 157 | -- |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 7.8 | -- | 7.48 | 7.5 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 19 | -- | 6.7 | 16.8 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-----------------|-------------------------|-------------------|-------------|-------------|-------------|-------------|-------------|------------------|
| | | | | | 19-Nov-2012 | 22-Apr-2013 | 06-Sep-2013 | 15-Oct-2013 | 29-Nov-2013 | 09-May-2014 (26) |
| | | | | | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(6) | mg/L | --(6) | 120000 | 48000 | 110000 | -- | 94000 | 79000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.6 | 0.91 | <0.03 | -- | 0.82 | 0.54 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 61 | 70 | <50 | -- | 60 | 110 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | <2000 | <2000 | -- | <2000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 15000 | 32000 | 19000 | -- | 31000 | 28000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 14000 | 6000 | 13000 | -- | 10000 | 10000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 5400 | 13000 | 7000 | -- | 9200 | 11000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 140000 | 61000 | 120000 | -- | 100000 | 87000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 350 | <100 | -- | 160 | 290 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | <10 | -- | <10 | <20 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 450 | 630 | 690 | -- | 610 | 470 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | <100 | 350 | <100 | -- | 160 | 290 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 11 | 40 | 36 | <100 | 42 | 21 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 19000 | 4000 | 10000 | -- | 11000 | 10000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 164000 | 120000 | 164000 | -- | 146000 | 144000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(9) | ntu | --(9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | --(10) | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | 8.4 | 180 | 12 | -- | 86 | 110 |
| Barium | ug/l | -- | mg/L | -- | 21 | 28 | 19 | -- | 25 | 18 |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | <0.50 | <0.50 | <0.50 | -- | <0.50 | <0.50 |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | 18 | <10 | 19 | -- | 18 | <10 |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | <0.10 | <0.10 | <0.10 | -- | <0.10 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 37000 | 18000 | 33000 | -- | 32000 | 24000 |
| Chromium | ug/l | --(14) | mg/L | 14 | <5.0 | <5.0 | <5.0 | -- | <5.0 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | 1.3 | <0.50 | -- | 0.55 | <0.50 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1.6 | 3.3 | 2.5 | -- | 1.2 | 5.3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 270 | 2300 | 660 | -- | 1200 | 790 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | <0.50 | 1.2 | <0.50 | -- | <0.50 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 12000 | 5300 | 8700 | -- | 9700 | 7100 |
| Manganese | ug/l | -- | mg/L | -- | 47 | 120 | 40 | -- | 200 | 77 |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | <0.1 | <0.1 | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | <0.50 | <0.50 | -- | <0.50 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <1.0 | 2.6 | 1 | -- | 1.4 | <1.0 |
| Potassium | ug/l | -- | mg/L | -- | 1800 | 1000 | 1600 | -- | 1400 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6700 | 5800 | 5100 | -- | 8700 | 4600 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | <0.10 | <0.10 | -- | <0.10 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 11000 | 4300 | 10000 | -- | 8100 | 6900 |
| Strontium | ug/l | -- | mg/L | -- | 110 | 60 | 100 | -- | 92 | 77 |
| Sulfur | ug/l | -- | mg/L | -- | 6200 | 3400 | 3400 | -- | 3900 | 3100 |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | <0.050 | <0.050 | <0.050 | -- | <0.050 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <5.0 | 130 | 12 | -- | 19 | 15 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.73 | 5.2 | 0.92 | -- | 1.9 | 1.9 |
| Zinc | ug/l | 30 (13) | mg/L | 0.03 (13) | 11 | 13 | 7.2 | -- | 5.3 | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | <1.0 | 1.7 | -- | -- | 1.4 | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(6) | mg/L | --(6) | 10300 | 2530 | 3670 | -- | --(23) | 9670 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 285 | 301 | 263 | 246 | 258 | 246 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.05 | 7.89 | 6.34 | 6.92 | 8.22 | 7.32 |
| Temperature (Field) | deg c | --(6) | deg c | --(6) | 0.3 | 8.8 | 16 | 13 | 0.1 | 13.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 27-Aug-2014 | 23-Sep-2014 | 24-Nov-2014 | 08-Dec-2014 | 14-May-2015 | 18-Aug-2015 |
| | | | | | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 120000 | -- | 60000 | -- | 78000 | 130000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 1.75 | -- | 0.57 | -- | <0.29 | <0.61 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 73 | -- | 99 | -- | <50 | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <2000 | -- | <2000 | -- | <2000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 16000 | -- | 37000 | -- | 35000 | 15000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 20000 | -- | 11000 | -- | 11000 | 27000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 6800 | -- | 12000 | -- | 15000 | 7000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 120000 | -- | 69000 | -- | 85000 | 130000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 140 | -- | 750 | -- | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | -- | <10 | -- | 12 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 470 | -- | 1100 | -- | 480 | 350 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 140 | -- | 750 | -- | 100 | <100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 31 | 25 | 370 | 31 | 33 | 48 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 11000 | -- | 5000 | -- | <1000 | 10000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 180000 | -- | 108000 | -- | 136000 | 218000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 21 | -- | 120 | -- | 100 | 15 |
| Barium | ug/l | -- | mg/L | -- | 25 | -- | 38 | -- | 16 | 25 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | -- | <0.50 | -- | <0.50 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | <10 | -- | 14 | -- | 17 | 24 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | -- | <0.10 | -- | <0.10 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 35000 | -- | 19000 | -- | 22000 | 38000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | -- | 7 | -- | <5.0 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | -- | 1.7 | -- | <0.50 | <0.50 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1.4 | -- | 4.7 | -- | 1 | 1.3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 630 | 1100 | 3200 | 1200 | 1200 | 630 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.50 | -- | 1.4 | -- | <0.50 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 9200 | -- | 6400 | -- | 6000 | 9500 |
| Manganese | ug/l | -- | mg/L | -- | 44 | -- | 170 | -- | 67 | 39 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | -- | <0.50 | -- | <0.50 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <1.0 | -- | 4 | -- | 1.2 | <1.0 |
| Potassium | ug/l | -- | mg/L | -- | 1900 | -- | 2700 | -- | 1000 | 2000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6400 | -- | 9000 | -- | 5100 | 7000 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | -- | <0.10 | -- | <0.10 | 0.15 |
| Sodium | ug/l | -- | mg/L | -- | 14000 | -- | 6100 | -- | 6800 | 17000 |
| Strontium | ug/l | -- | mg/L | -- | 110 | -- | 60 | -- | 63 | 110 |
| Sulfur | ug/l | -- | mg/L | -- | 3300 | -- | 2600 | -- | 2300 | 2400 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | -- | <0.050 | -- | <0.050 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 11 | -- | 170 | -- | 15 | 10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1.4 | -- | 6.7 | -- | 1.8 | 1.4 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <5.0 | -- | 14 | -- | <5.0 | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1.0 | -- | 5.1 | -- | <1.0 | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 7010 | -- | 11700 | -- | 9920 | 9810 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 209 | -- | 1.65 | -- | 301 | 364 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.89 | -- | 7.63 | -- | 7.41 | 7.5 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 17 | -- | 6.1 | -- | 12.6 | 19.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 20-Nov-2015 | GS6 15-Jun-2016 | GS6 22-Aug-2016 | GS6 13-Oct-2016 | GS6 01-May-2017 | GS6 20-Sep-2017 |
|----------------------------------|-------------------|-------------------------|-------------------|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | 6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 86000 | 123 | 92 | 147 | 49 | 117 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <0.28 | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <50 | 0.05 | 0.12 | < 0.01 | < 0.01 | < 0.01 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <2000 | < 3 | < 3 | < 3 | < 3 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 35000 | 21 | 23 | 20 | 49 | 26 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 17000 | 13.9 | 10.6 | 37 | 6.8 | 10.6 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | 298 | 264 | 423 | 171 | 288 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 12000 | 8 | 9.1 | 8.5 | 12.9 | 10.2 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 120000 | 110 | 112 | 103 | 87 | 128 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 3020 | 0.3 | 0.2 | < 0.1 | 1.69 | 0.2 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 12 | < 0.1 | 0.2 | < 0.1 | < 0.05 | < 0.1 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1600 | 0.65 | 0.5 | 0.41 | 0.78 | 0.5 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 3030 | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 36 | 0.05 | 0.04 | 0.03 | 0.19 | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 9500 | 8 | 20 | 11 | 7 | 6 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 214000 | -- | -- | -- | 84.4 | 149 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | 0.22 | 0.1 | 0.04 | 2.41 | 0.2 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 110 | 0.13 | 0.03 | 0.01 | 0.18 | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 24 | 0.023 | 0.024 | 0.02 | 0.046 | 0.034 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 11 | 0.012 | 0.011 | < 0.005 | 0.008 | 0.014 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | < 0.00002 | < 0.00002 | < 0.00002 | 0.000148 | 0.000037 |
| Calcium | ug/l | -- | mg/L | -- | 30000 | 34.7 | 31.7 | 29 | 22.3 | 35.7 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | 0.002 | < 0.002 | < 0.002 | 0.007 | 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | 0.0002 | < 0.0001 | < 0.0001 | 0.0017 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1.3 | 0.0008 | 0.0013 | 0.0023 | 0.0076 | 0.0085 |
| Iron | ug/l | 300 | mg/L | 0.3 | 930 | 0.757 | 0.258 | 0.217 | 3.76 | 0.908 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.50 | 0.00016 | 0.00007 | < 0.00002 | 0.00221 | 0.00079 |
| Magnesium | ug/l | -- | mg/L | -- | 8800 | 9.47 | 7.9 | 7.48 | 7.5 | 9.64 |
| Manganese | ug/l | -- | mg/L | -- | 86 | 0.085 | 0.022 | 0.04 | 0.119 | 0.062 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | 0.0003 | 0.0004 | 0.0002 | 0.0004 | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 1 | 0.0019 | 0.0009 | 0.0008 | 0.0055 | 0.0044 |
| Potassium | ug/l | -- | mg/L | -- | 1200 | 1.5 | 1.3 | 2.4 | 1.2 | 2.1 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6600 | 5.61 | 4.85 | 4.19 | 7.23 | 5.99 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium | ug/l | -- | mg/L | -- | 11000 | 11.9 | 9 | 17.1 | 5.8 | 11.2 |
| Strontium | ug/l | -- | mg/L | -- | 92 | 0.118 | 0.107 | 0.09 | 0.089 | 0.141 |
| Sulfur | ug/l | -- | mg/L | -- | 3300 | 2.7 | 6.9 | 2.5 | 2.6 | 2.3 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 16 | 0.012 | < 0.005 | < 0.005 | 0.17 | 0.011 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1.4 | 0.0014 | 0.0012 | 0.0002 | 0.0064 | 0.0012 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <5.0 | < 0.005 | < 0.005 | < 0.005 | 0.045 | 0.03 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1.0 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9080 | 6.86 | 8.03 | 5.08 | 9.78 | 6.87 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 712 | 288 | 270 | 416 | 153 | 247 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.63 | 7.4 | 7.4 | 7.8 | 7.2 | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 5.9 | 19 | 17.3 | 11.2 | 7.3 | 18.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-------------|--------------|--------------|-------------|---------------|--------------|
| | | | | | 6-Nov-2017 | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 25-April-2019 | 24-Sept-2019 |
| | | | | | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 53 | 56 | 101 | 72 | 39 | 75 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | 0.0003 | 0.0014 | 0.0001 | 0.0009 | 0.0007 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | < 0.01 | 0.04 | 0.04 | 0.05 | 0.09 | 0.03 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | < 3 | < 3 | 5 | 12 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 60 | 90 | 25 | 47 | 84 | 30 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 8.1 | 8.2 | 18.5 | 13.6 | 7.1 | 7.5 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 163 | 176 | 270 | 235 | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 22.8 | 13.2 | 7.7 | -- | 35.9 | 12.4 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 75 | 83 | 115 | 105 | 50 | 109 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1.87 | 0.95 | 0.29 | 1.03 | 0.8 | < 0.05 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.8 | 0.5 | 0.4 | 0.6 | 0.8 | 0.5 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.05 | 0.05 | 0.04 | 0.04 | 0.14 | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7 | 6 | 9 | 12 | 5 | 24 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 81 | 85 | 139 | 117 | 59 | 124 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.58 | 0.41 | 0.12 | 0.42 | 1.31 | 0.24 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.27 | 0.15 | 0.03 | 0.15 | 0.3 | 0.240 |
| Barium | ug/l | -- | mg/L | -- | 0.024 | 0.028 | 0.022 | 0.034 | 0.023 | 0.026 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.008 | 0.009 | 0.009 | 0.006 | 0.009 | 0.014 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000068 | 0.000015 | 0.000059 | 0.000033 | 0.000044 | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 19.3 | 22.6 | 29.5 | 27.7 | 14.9 | 31.7 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.001 | <0.001 | <0.0001 | 0.002 | 0.004 | 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0004 | 0.0002 | 0.0002 | 0.0004 | 0.001 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0049 | 0.0011 | 0.0009 | 0.0043 | 0.0036 | 0.0016 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.06 | 0.793 | 0.503 | 1.13 | 1.85 | 0.554 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00101 | 0.00022 | 0.00013 | 0.00061 | 0.00108 | 0.0002 |
| Magnesium | ug/l | -- | mg/L | -- | 5.66 | 6.5 | 7.35 | 8.62 | 4.26 | 7.17 |
| Manganese | ug/l | -- | mg/L | -- | 0.066 | 0.055 | 0.024 | 0.077 | 0.066 | 0.028 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0003 | <0.0001 | 0.0003 | 0.0003 | 0.0003 | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0027 | 0.001 | 0.00008 | 0.0017 | 0.0025 | 0.0008 |
| Potassium | ug/l | -- | mg/L | -- | 1.2 | 0.8 | 1.4 | 1 | 1.1 | 2.6 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5.15 | 3.78 | 6.29 | 5.95 | 4.15 | 5.21 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.0002 | < 0.00002 | < 0.0001 | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 6.6 | 6.5 | 12.1 | 9.6 | 4.5 | 5.8 |
| Strontium | ug/l | -- | mg/L | -- | 0.065 | 0.094 | 0.096 | 0.118 | 0.048 | 0.106 |
| Sulfur | ug/l | -- | mg/L | -- | 2.7 | 2.1 | 3.2 | 3.6 | 1.7 | 10 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.024 | 0.011 | 0.006 | 0.022 | 0.08 | 0.013 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0015 | 0.0021 | 0.0018 | 0.0015 | 0.0039 | 0.0022 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 0.016 | 0.042 | 0.022 | 0.011 | 0.019 | 0.006 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | < 0.001 | 0.002 | 0.002 | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6.6 | 6.99 | 6.85 | 11.1 | 9.8 | 8.3 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 160 | 140 | 224 | 191 | 138 | 252 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.5 | 7.6 | 7.9 | 7.3 | 7.8 | 7.84 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 10 | 9 | 19.2 | 4.6 | 6.3 | 15.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|--------------|--------------|-------------|--------------|--------------|--------------|
| | | | | | 31-Oct-2019 | 25-May-2020 | 29-Jul-2020 | 3-Nov-2020 | 25-May-2021 | 16-Aug-2021 |
| | | | | | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 96 | 96 | 167 | 90 | 111 | 110 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0001 | 0.0009 | 0.02 | 0.0006 | 0.005 | 0.002 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.02 | 0.03 | 0.99 | 0.04 | 0.04 | 0.03 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | < 3 | 5 | < 3 | <3 | <3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 17 | 26 | 45 | 19 | 21 | 13 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 14 | 14.6 | 28.4 | 20.1 | 16 | 38.9 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 8.3 | 11.3 | 17 | 16.1 | 9.2 | 7.1 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 129 | 104 | 189 | 124 | 116 | 121 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.45 | 0.11 | 0.11 | 0.92 | 0.24 | 0.12 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.3 | 0.4 | 2.5 | 0.6 | 0.5 | 0.4 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.01 | 0.03 | 0.26 | 0.07 | 0.05 | 0.03 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 19 | 5 | 3 | 15 | 6 | 10 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 149 | 128 | 232 | 143 | 147 | 185 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.17 | 0.1 | 1.88 | 0.13 | 0.09 | 0.34 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.04 | 0.03 | 0.08 | 0.04 | 0.03 |
| Barium | ug/l | -- | mg/L | -- | 0.028 | 0.021 | 0.068 | 0.023 | 0.02 | 0.026 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.005 | 0.009 | 0.109 | 0.009 | 0.011 | 0.01 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000018 | 0.000015 | 0.000028 | 0.000016 | <0.000015 | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 37.2 | 28.8 | 54.3 | 32.4 | 32.3 | 35.7 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | < 0.001 | < 0.001 | 0.004 | < 0.001 | < 0.001 | 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0002 | 0.0003 | 0.0012 | 0.0004 | 0.0002 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0011 | 0.0026 | 0.0033 | 0.0014 | 0.0008 | 0.001 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.377 | 0.652 | 3.28 | 0.687 | 0.474 | 0.647 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00009 | 0.00016 | 0.00095 | 0.00011 | 0.00009 | 0.00016 |
| Magnesium | ug/l | -- | mg/L | -- | 9.64 | 7.68 | 14.5 | 8.72 | 8.71 | 8.18 |
| Manganese | ug/l | -- | mg/L | -- | 0.032 | 0.067 | 0.661 | 0.067 | 0.054 | 0.028 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0003 | 0.0002 | 0.0004 | 0.0002 | 0.0003 | 0.0004 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0006 | 0.0011 | 0.0028 | 0.0008 | 0.0007 | 0.0007 |
| Potassium | ug/l | -- | mg/L | -- | 2 | 1.4 | 4.9 | 1.3 | 1.4 | 1.4 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5.5 | 4.75 | 10.3 | 5.29 | 4.99 | 6.13 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 9.4 | 11.2 | 20.8 | 11.7 | 9.9 | 23.4 |
| Strontium | ug/l | -- | mg/L | -- | 0.11 | 0.083 | 0.182 | 0.091 | 0.096 | 0.115 |
| Sulfur | ug/l | -- | mg/L | -- | 6.4 | 2.2 | 1.9 | 4.5 | 2.2 | 4.1 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.007 | 0.005 | 0.106 | 0.005 | < 0.005 | 0.022 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0009 | 0.001 | 0.0051 | 0.0008 | 0.0009 | 0.0021 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 0.013 | < 0.005 | 0.019 | < 0.005 | 0.01 | 0.014 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | < 0.002 | < 0.002 | < 0.002 | <0.002 | <0.002 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9.4 | 9.1 | 4.2 | 12 | 8.4 | 14.6 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 290 | 275 | 426 | 295 | 282 | 400 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.4 | 7.9 | 7.7 | 8.1 | 8.62 | 8.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 10.5 | 16.4 | 19 | 3.1 | 16.1 | 17 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 | GS6 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 11-Nov-2021 | 30-May-2022 | 27-July-2022 | 25-Oct-2022 | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | | | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 | GS-6 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 102 | 75 | 107 | 126 | 48 | 96 | 119 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0007 | 0.0001 | 0.0006 | 0.0002 | < 0.01 | 0.0005 | <0.05 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.08 | 0.05 | 0.04 | 0.04 | < 0.01 | 0.07 | <0.05 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | -- | < 3 | < 3 | 5 | <3 | <3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 31 | 46 | 13 | 102 | 41 | 46 | 16 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 19.9 | 14.7 | 14.2 | 17.6 | 13.6 | 18.1 | 24.7 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | 225 | 307 | 341 | -- | -- | 363 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 11.4 | -- | 14.1 | 7.6 | 23.5 | 19.9 | 5.5 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 131 | 93 | 129 | 145 | 68 | 117 | 145 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 1.08 | 1.04 | 1.15 | 0.76 | 1.53 | 0.94 | 1.59 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.5 | 0.8 | 0.5 | 0.6 | 0.5 | 0.6 | 0.3 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.05 | 0.05 | 0.04 | 0.22 | 0.02 | 0.04 | 0.04 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 14 | 4.2 | 19 | 6.8 | 12 | 13 | 22 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 159 | 114 | 159 | 177 | 84 | 138 | 174 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.22 | 0.26 | 0.14 | 0.02 | 0.44 | 0.27 | 0.15 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.07 | -- | 0.05 | 0.06 | 0.24 | 0.14 | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 0.029 | 0.022 | 0.025 | 0.026 | 0.018 | 0.032 | 0.035 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.008 | 0.006 | 0.01 | 0.011 | 0.006 | 0.012 | 0.010 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | 0.000022 | < 0.000015 | < 0.000015 | 0.000036 | 0.000029 | <0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 36.3 | 25.9 | 37.8 | 39.5 | 16.7 | 32.9 | 40.9 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.001 | 0.001 | < 0.001 | < 0.001 | 0.002 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0006 | 0.0003 | 0.0002 | 0.0001 | 0.0006 | 0.0003 | 0.0002 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0009 | 0.0014 | 0.0009 | 0.0008 | 0.002 | 0.0015 | 0.0013 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.836 | 1.09 | 0.45 | 0.265 | 0.732 | 1.49 | 0.557 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.0011 | 0.0003 | 0.00007 | 0.00004 | 0.00055 | 0.00028 | 0.00009 |
| Magnesium | ug/l | -- | mg/L | -- | 9.87 | 6.88 | 8.28 | 11.3 | 4.78 | 8.36 | 10.5 |
| Manganese | ug/l | -- | mg/L | -- | 0.197 | 0.04 | 0.067 | 0.037 | 0.075 | 0.090 | 0.066 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0009 | 0.0012 | 0.0007 | 0.0008 | 0.001 | 0.0016 | 0.0007 |
| Potassium | ug/l | -- | mg/L | -- | 1.6 | 1.2 | 1.5 | 3.7 | 1.0 | 1.0 | 1.8 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6.42 | 5.21 | 5.94 | 6.95 | 3.59 | 6.12 | 7.03 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 12.1 | 8.4 | 11.6 | 24 | 6.2 | 10.6 | 13.0 |
| Strontium | ug/l | -- | mg/L | -- | 0.122 | 0.091 | 0.149 | 0.139 | 0.066 | 0.117 | 0.165 |
| Sulfur | ug/l | -- | mg/L | -- | 4.9 | 4.2 | 5.9 | 6.8 | 2.8 | 4.76 | 8.23 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | <0.00005 | <0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.011 | 0.008 | 0.006 | < 0.005 | 0.017 | 0.011 | 0.007 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0011 | 0.0013 | 0.0012 | 0.0005 | 0.0015 | 0.0012 | 0.0008 |
| Zinc | ug/l | 30 ⁽¹⁵⁾ | mg/L | 0.03 ⁽¹⁵⁾ | 0.016 | < 0.005 | < 0.005 | 0.007 | < 0.005 | 0.007 | 0.005 |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <0.002 | < 0.001 | < 0.001 | 0.001 | < 0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9.6 | 10.2 | 8.4 | 8.6 | 8.3 | 15.5 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 319 | 230 | 320 | 310 | 210 | 546 | 313 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.8 | 6.8 | 7.4 | 7.42 | 7.43 | 7.23 | 8.13 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 4.8 | 19.5 | 22.3 | 8.4 | 9.0 | 16.9 | 15.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S8 | S8 | S8 | S8 | S8 | S8 |
|----------------------------------|---------------|-------------------------|--------------|-----------------------------|-------------|-------------|-------------|---------------|--------------|--------------|
| | (< June 2016) | PWQO | (June 2016+) | PWQO | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 25-April-2019 | 24-Sept-2019 | 31-Oct-2019 |
| | | | | | S-8 | S-8 | S-8 | S-8 | S-8 | S-8 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 74 | 153 | 90 | 43 | 94 | 116 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0007 | 0.0021 | 0.0002 | 0.0045 | 0.0012 | 0.0040 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.05 | 0.04 | 0.04 | 0.15 | 0.04 | 0.04 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | <3 | 4 | -- | -- | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 82 | 25 | 41 | -- | -- | 20 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 18.1 | 49.1 | 33.1 | 15.9 | 19.4 | 60 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 242 | 473 | 346 | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 12.4 | 12.9 | 11.2 | 14.6 | 15.1 | 8.5 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 100 | 159 | 136 | 66 | 130 | 163 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.75 | 0.31 | 1.6 | -- | -- | 0.66 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <0.05 | <0.05 | <0.05 | -- | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.7 | 0.5 | 0.6 | -- | -- | 0.6 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.16 | 0.09 | 0.07 | 0.34 | 0.340 | 0.080 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7 | 13 | 14 | -- | -- | 25 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 121 | 250 | 173 | 85 | 170 | 252 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | 1.4 | 0.52 | 0.11 | -- | -- | 0.680 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.12 | 0.02 | 0.39 | -- | -- | 0.320 |
| Barium | ug/l | -- | mg/L | -- | 0.038 | 0.29 | 0.039 | -- | -- | 0.036 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.002 | <0.002 | <0.002 | -- | -- | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.011 | 0.046 | 0.011 | 0.015 | 0.056 | 0.011 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000033 | 0.000024 | 0.000032 | -- | -- | 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 26 | 41 | 35.5 | -- | -- | 45.6 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.005 | 0.002 | 0.002 | -- | -- | 0.002 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0009 | 0.0005 | 0.0003 | -- | -- | 0.0004 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.004 | 0.0024 | 0.0071 | -- | -- | 0.0034 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.8 | 1.01 | 0.93 | 3.93 | 2.03 | 0.87 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00101 | 0.00032 | 0.00049 | -- | -- | 0.00057 |
| Magnesium | ug/l | -- | mg/L | -- | 8.54 | 11.1 | 11.4 | -- | -- | 12.6 |
| Manganese | ug/l | -- | mg/L | -- | 0.064 | 0.048 | 0.037 | 0.092 | 0.076 | 0.036 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.00002 | <0.00002 | <0.00002 | -- | -- | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0002 | 0.0004 | 0.0004 | -- | -- | 0.0004 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0035 | 0.0018 | 0.0021 | -- | -- | 0.0021 |
| Potassium | ug/l | -- | mg/L | -- | 2.2 | 2.5 | 1.8 | -- | -- | 3.5 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 5.48 | 6.74 | 6.12 | -- | -- | 6.14 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.00002 | <0.0001 | <0.0001 | -- | -- | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 12.6 | 39.9 | 21.9 | 9.2 | 16.9 | 34.4 |
| Strontium | ug/l | -- | mg/L | -- | 0.112 | 0.165 | 0.161 | -- | -- | 0.149 |
| Sulfur | ug/l | -- | mg/L | -- | 2.4 | 4.7 | 4.5 | -- | -- | 8.4 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | 0.00023 | <0.00005 | <0.00005 | -- | -- | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.083 | 0.031 | 0.02 | -- | -- | 0.034 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0046 | 0.0034 | 0.0016 | -- | -- | 0.0022 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 0.02 | 0.015 | 0.015 | -- | -- | 0.02 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <0.001 | <0.002 | <0.002 | -- | -- | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6.99 | 7.26 | 11.5 | 11.6 | 8.5 | 7.5 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 197 | 377 | 269 | 180 | 335 | 421 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.9 | 8.1 | 7.6 | 8.3 | 7.95 | 8.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 7.1 | 18.8 | 4 | 5.3 | 15.2 | 12.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | S8 | S8 | | S8 | S8 | S8 |
|----------------------------------|---------------|--------------|--------------|-------------------|-------------|-------------|--------|-----------------|------------|------------|
| | (< June 2016) | PWQO | (June 2016+) | PWQO | 25-May-2020 | 25-May-2020 | | 29-Jul-2020 (9) | 3-Nov-2020 | 3-Nov-2020 |
| | | | | | S-8 | DUP GS 22 | RDP | S-8 | S-8 | S-8 |
| | | | | | | | | | | Dup #1 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- (6) | mg/L | -- (6) | 120 | 119 | 0.84% | -- | 114 | 114 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0002 | -- | -- | -- | 0.0049 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.04 | 0.03 | 28.57% | -- | 0.19 | 0.18 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 23.2 | 23.1 | 0.43% | -- | 45.6 | 45.7 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 11 | 11.6 | 5.31% | -- | 8.5 | 8.6 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 138 | 134 | 2.94% | -- | 147 | 150 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | 0.07 | 0.05 | 33.33% | -- | 0.07 | 0.07 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 173 | 171 | 1.16% | -- | 210 | 212 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- (9) | ntu | -- (9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | -- | -- | -- | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | 0.017 | 0.016 | 6.06% | -- | 0.011 | 0.012 |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | -- | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | ug/l | -- (14) | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.892 | 0.853 | 4.47% | -- | 0.647 | 0.668 |
| Lead | ug/l | 5-25 (15) | mg/L | 0.005-0.025 (15) | -- | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.058 | 0.058 | 0.00% | -- | 0.037 | 0.039 |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 18.5 | 18.3 | 1.09% | -- | 25.2 | 25.7 |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 (13) | mg/L | 0.03 (13) | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- (6) | mg/L | -- (6) | 9.5 | -- | -- | -- | 17.4 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 325 | -- | -- | -- | 460 | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.2 | -- | -- | -- | 8.4 | -- |
| Temperature (Field) | deg c | -- (6) | deg c | -- (6) | 15 | -- | -- | -- | 0.6 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | RDP | S8 | S8 | S8 | S8 | RDP | S8 | S8 | RDP |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------|-----------|-----------|-----------|-----------|--------|-------------|-------------|--------|
| | | | | | | 25-May-21 | 16-Aug-21 | 10-Nov-21 | 10-Nov-21 | | 30-May-2022 | 30-May-2022 | |
| | | | | | | S-8 | | S-8 | | S-8 | | | |
| | | | | | | Dup #2 | Dup #1 | | Dup #1 | | RDP | | |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 0.00% | 144 | 149 | 127 | 127 | 0.00% | 94 | 94 | 0.00% |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | 0.001 | 0.0001 | 0.0002 | 0.0003 | 40.00% | 0.0004 | 0.0006 | NC |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 5.41% | 0.04 | 0.1 | 0.03 | 0.04 | 28.57% | 0.03 | 0.04 | 28.57% |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 0.22% | 32.7 | 44.3 | 50.3 | 50.6 | 0.59% | 32.4 | 32.2 | 0.62% |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 1.17% | 9 | 10.1 | 9.6 | 10.8 | 11.76% | 22.4 | 26.4 | 16.39% |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 2.02% | 138 | 157 | 154 | 164 | 6.29% | 106 | 120 | 12.39% |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.00% | 0.07 | 0.1 | 0.06 | 0.05 | 18.18% | 0.07 | 0.07 | 0.00% |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 0.95% | 200 | 236 | 227 | 233 | 2.61% | 156 | 163 | 4.39% |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 8.70% | 0.016 | 0.021 | 0.012 | 0.012 | 0.00% | 0.009 | 0.01 | 10.53% |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 3.19% | 0.888 | 1.61 | 0.9 | 0.979 | 8.41% | 1.23 | 1.36 | 10.04% |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 5.26% | 0.071 | 0.182 | 0.055 | 0.059 | 7.02% | 0.037 | 0.035 | 5.56% |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 1.96% | 18.7 | 28 | 27.7 | 29.3 | 5.61% | 17.5 | 20 | 13.33% |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 14.7 | 13.2 | 12.5 | -- | -- | 11.9 | 11.9 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 392 | 500 | 456 | -- | -- | 330 | 330 | -- |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 7.99 | 7.54 | 7.7 | -- | -- | 7.6 | 7.6 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 15.7 | 18.7 | 6.7 | -- | -- | 16.4 | 16.4 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS8 | GS8 | | GS8 | |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------|--------------|--|-------------|--------|
| | | | | | 27-July-2022 | 27-July-2022 | | 25-Oct-2022 | |
| | | | | | S-8 | S-8 | | S-8 | |
| | | | | | Dup #1 | RPD | | | |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 165 | 163 | | 1.22% | 135 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0035 | 0.0035 | | NC | 0.0041 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.02 | 0.02 | | 0.00% | 0.03 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 42.8 | 42.8 | | 0.00% | 39.6 |
| Color | color unit | -- | color unit | -- | -- | -- | | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 479 | 470 | | 1.90% | 462 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 11.5 | 14.4 | | 22.39% | 11 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 177 | 171 | | 3.45% | 180 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.09 | 0.1 | | 10.53% | 0.02 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 254 | 250 | | 1.59% | 237 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | | -- | -- |
| Metals | | | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.021 | 0.019 | | 10.00% | 0.076 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.36 | 1.27 | | 6.84% | 0.361 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.079 | 0.078 | | 1.27% | 0.043 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 27.5 | 26.3 | | 4.46% | 30.6 |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | | -- | -- |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | | -- | -- |
| Field Measurements | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 11 | 11 | | -- | 8.2 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 240 | 240 | | -- | 400 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.6 | 8.6 | | -- | 8.73 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 20.8 | 20.8 | | -- | 13.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS8 | GS8 | GS8 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|--------------|--------------|--------------|
| | | | | | 03-May-2023 | 15-Aug-2023 | 29-Sept-2023 |
| | | | | | S-8 | S-8 | S-8 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 51 | 113 | 161 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.0001 | 0.0004 | <0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 0.01 | 0.06 | <0.05 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 16.4 | 35.7 | 33.9 |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | 341 | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 24.4 | 25.6 | 3.8 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 61 | 121 | 165 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.21 | 0.06 | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 86 | 175 | 225 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | 75 | mg/L | 0.075 | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.009 | 0.016 | 0.016 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 16.5 | -- | 45.9 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.283 | 0.744 | 1.09 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 4.74 | -- | 12.3 |
| Manganese | ug/l | -- | mg/L | -- | 0.039 | 0.027 | 0.033 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 10.1 | 20.3 | 20.2 |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9.0 | 15.7 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 260 | 308 | 407 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.70 | 7.28 | 8.20 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 7.4 | 16.8 | 13.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 30-Apr-1992 | GS11 08-Sep-1992 | GS11 28-Nov-1992 | GS11 04-May-1993 | GS11 29-Aug-1993 | GS11 11-Nov-1993 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 82000 | 116000 | 80000 | 98000 | 139000 | 77000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <100 | 130 | <10 | <10 | <10 | <10 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <1000 | 1000 | <1000 | 1000 | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 8000 | 15000 | 8000 | 13000 | 21000 | 10000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 31000 | 34000 | 30000 | 38000 | 47000 | 30000 |
| Color | color unit | -- | color unit | -- | 13 | 13 | 7 | 17 | 16 | 8 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 125000 | 134000 | 113000 | 111000 | 159000 | 107000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 190 | 320 | 130 | 310 | 360 | 230 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | 190 | 190 | 130 | 310 | 360 | 230 |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | <30 | 70 | <30 | <30 | 20 | 10 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 49000 | 12000 | 47000 | 34000 | 8000 | 29000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 210000 | 220000 | 220000 | 230000 | 270000 | 190000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | 5200 | 5400 | 4000 | 7100 | 8800 | 4700 |
| Total Suspended Solids | ug/l | -- | mg/L | -- | 32000 | 26000 | 4000 | 2000 | 3000 | 2000 |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | 19 | 13 | 1.6 | 0.6 | 2.9 | 1.4 |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 470 | 110 | 70 | 160 | <30 | <30 |
| Barium | ug/l | -- | mg/L | -- | 40 | 40 | 20 | 30 | <10 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | -- | <10 | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 90 | 110 | 60 | <10 | 130 | 90 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.2 | <0.15 | 0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | ug/l | -- | mg/L | -- | 22000 | 29000 | 24000 | 23000 | 34000 | 23000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | <10 | <10 | <10 | <10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <10 | <10 | -- | <0.4 | <0.4 | <0.4 |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <5 | 5 | <5 | <5 |
| Iron | ug/l | 300 | mg/L | 0.3 | 470 | 3250 | 180 | 300 | 1380 | 140 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesium | ug/l | -- | mg/L | -- | 17000 | 15000 | 13000 | 13000 | 18000 | 12000 |
| Manganese | ug/l | -- | mg/L | -- | <10 | 620 | 30 | <10 | 380 | 30 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | -- | <10 | <10 | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | ug/l | -- | mg/L | -- | 3000 | 2000 | 1000 | 2000 | 2000 | 1000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Silicon | ug/l | -- | mg/L | -- | 4200 | 5900 | -- | 800 | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 30000 | 28000 | 20000 | 23000 | 30000 | 20000 |
| Strontium | ug/l | -- | mg/L | -- | 50 | 140 | 120 | <7 | 260 | <7 |
| Sulfur | ug/l | -- | mg/L | -- | 13000 | 20000 | -- | 9000 | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <50 | <50 | -- | <5 | <5 | <5 |
| Tin | ug/l | -- | mg/L | -- | <50 | <50 | -- | <50 | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 40 | <10 | -- | <10 | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 20 | <10 | -- | <7 | <7 | <7 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | 10 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 12000 | 9600 | 13200 | 8600 | 9300 | 12100 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 490 | 385 | 260 | 375 | 410 | 290 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.8 | 7.3 | 7.1 | 6.5 | 7.5 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 6 | 12 | 0 | 17 | 19 | 3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 04-Jun-1994 | GS11 07-Sep-1994 | GS11 24-Nov-1994 | GS11 28-May-1995 | GS11 11-Sep-1995 | GS11 07-Nov-1995 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 110000 | 132000 | -- | 124000 | 118000 | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 13000 | 15000 | -- | 10000 | 18000 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 46000 | 50000 | 41000 | 57000 | 61000 | 50000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 5900 | 6700 | -- | 6200 | 7600 | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 143000 | 156000 | -- | 173000 | 182000 | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | <10 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 190000 | 250000 | -- | 284000 | 296000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | 50 |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | -- | 300 | 280 | 5540 | 140 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | -- | 90 | 1560 | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 23000 | 17000 | -- | 27000 | 31000 | -- |
| Strontium | ug/l | -- | mg/L | -- | 140 | 160 | -- | 186 | 214 | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8100 | 8100 | 9600 | 7800 | -- ⁽²³⁾ | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 330 | 400 | 350 | 450 | 550 | 485 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.5 | 7.1 | 7 | 7 | 7.5 | 8.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 14 | 15 | 4.5 | 13 | 15 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 17-Jul-1996 | GS11 22-Nov-1996 | GS11 10-Jun-1997 | GS11 09-Sep-1997 | GS11 09-Jun-1998 | GS11 20-Aug-1998 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 108000 | 92000 | 165000 | 155000 | 185000 | 176000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <20 | <20 | <20 | 40 | 20 | <20 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3000 | 3000 | 2000 | <1000 | 1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 24000 | 18000 | 27000 | 26000 | 18000 | 27000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 42000 | 43000 | 50000 | 82000 | 83000 | 70000 |
| Color | color unit | -- | color unit | -- | 16 | 3 | 9 | 8 | 14 | 10 |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 8200 | 5200 | 8800 | 9400 | 9500 | 9600 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 109000 | 136000 | 174000 | 220000 | 214000 | 203000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 540 | 600 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 10 | 50 | 20 | 190 | 50 | 30 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 16000 | 6000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 208000 | 208000 | 296000 | 380000 | 372000 | 336000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <30 | 450 | 160 | 320 | <30 | 150 |
| Barium | ug/l | -- | mg/L | -- | 20 | 30 | 40 | 60 | 30 | 40 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | 10 | <10 | <10 | <10 | <10 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 100 | 50 | 60 | 90 | 70 | 90 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | ug/l | -- | mg/L | -- | 24000 | 28000 | 40000 | 50000 | 51000 | 45000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | 10 | <10 | <10 | <10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.4 | 1.6 | 0.9 | 2.3 | 1.2 | 4.3 |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | 25 | <5 | <5 | <5 |
| Iron | ug/l | 300 | mg/L | 0.3 | 320 | 2470 | 1550 | 3190 | 970 | 150 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesium | ug/l | -- | mg/L | -- | 12000 | 16000 | 18000 | 23000 | 24000 | 22000 |
| Manganese | ug/l | -- | mg/L | -- | 110 | 80 | 350 | 420 | 240 | 210 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | 0.6 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | <10 | <10 | <10 | <10 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | ug/l | -- | mg/L | -- | 2000 | 2000 | 3000 | 3000 | 3000 | 3000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4000 | 5400 | 5000 | 5300 | 3500 | 4100 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 22000 | 22000 | 29000 | 43000 | 39000 | 40000 |
| Strontium | ug/l | -- | mg/L | -- | 145 | 132 | 193 | 221 | 254 | 219 |
| Sulfur | ug/l | -- | mg/L | -- | <3000 | <3000 | 3000 | 10000 | 6000 | 3000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | <5 | <5 | <5 |
| Tin | ug/l | -- | mg/L | -- | -- | <50 | -- | <50 | <50 | <50 |
| Titanium | ug/l | -- | mg/L | -- | <10 | 60 | <10 | 20 | <10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 16 | <7 | <7 | <7 | <7 | <7 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | 10 | 10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 3 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8400 | 11600 | 9000 | 8000 | 7500 | 7800 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 260 | 210 | 310 | 500 | 400 | 530 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.4 | 6.8 | 7.3 | 6.7 | 7.15 | 7.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 16 | 2 | 9 | 14 | 16 | 16 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 26-May-1999 | GS11 31-Aug-1999 | GS11 01-Jun-2000 | GS11 18-Aug-2000 | GS11 30-May-2001 | GS11 10-Aug-2001 ⁽⁹⁾ |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 222000 | 205000 | 193000 | 203000 | 202000 | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | 95 | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <20 | 150 | 30 | 20 | <20 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 5000 | <1000 | <1000 | <1000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 34000 | 33000 | 20000 | 26000 | 24000 | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 66000 | 65000 | 41000 | 46000 | 53000 | -- |
| Color | color unit | -- | color unit | -- | 11 | 8 | 12 | 18 | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 12900 | 10800 | 9100 | 11100 | 11900 | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 215000 | 220000 | 180000 | 191000 | 191000 | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | <100 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | <100 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 480 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 20 | 240 | 20 | 70 | <10 | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 6000 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 340000 | 368000 | 296000 | 188000 | 348000 | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <30 | <30 | 160 | 80 | <50 | -- |
| Barium | ug/l | -- | mg/L | -- | 40 | 70 | 100 | 30 | 30 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | <2 | <2 | <2 | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 110 | 130 | 110 | 140 | 100 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.1 | <0.1 | <0.1 | -- |
| Calcium | ug/l | -- | mg/L | -- | 48000 | 50000 | 39000 | 42000 | 40000 | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <10 | <10 | <10 | <10 | <1 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 1 | 3.1 | 0.7 | 1.1 | <0.2 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <10 | <1 | <1 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 470 | 3280 | 1000 | 860 | 470 | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <1 | <1 | -- |
| Magnesium | ug/l | -- | mg/L | -- | 23000 | 23000 | 20000 | 21000 | 22000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 240 | 840 | 110 | 390 | 90 | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.1 | <0.1 | <0.1 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | <10 | <10 | 10 | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | 3000 | 3000 | 2000 | 2000 | 3000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4400 | 5500 | 3440 | 4260 | 3670 | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 43000 | 45000 | 34000 | 40000 | 36000 | -- |
| Strontium | ug/l | -- | mg/L | -- | 239 | 230 | 187 | 187 | 210 | -- |
| Sulfur | ug/l | -- | mg/L | -- | <3000 | 4000 | <1000 | 1000 | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <2 | <1 | <1 | -- |
| Tin | ug/l | -- | mg/L | -- | <50 | <50 | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | <10 | <10 | <10 | <10 | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <7 | <7 | <2 | <1 | <1 | -- |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 20 | <10 | <10 | <10 | <10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | <1 | <1 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8400 | 600 | 7400 | 6110 | 7940 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 470 | 415 | 240 | 488 | -- ⁽²²⁾ | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.35 | 9.5 | 6.89 | 7.5 | 7.15 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 12 | 18 | 11 | 17.2 | 11.3 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 05-Apr-2002 | GS11 06-Aug-2002 | GS11 01-Nov-2002 | GS11 12-May-2003 | GS11 26-Aug-2003 | GS11 19-Nov-2003 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 141000 | 237000 | 166000 | 258000 | 257000 | 215000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <20 | <20 | <20 | 40 | 40 | 150 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 2000 | 2000 | <1000 | <1000 | <1000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 16000 | 24000 | 24000 | 39000 | 33000 | 25000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 64000 | 111000 | 151000 | 116000 | 119000 | 125000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 7000 | 11400 | 11900 | 12600 | 13000 | 10100 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 191000 | 299000 | 358000 | 312000 | 298000 | 296000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 450 | 1250 | 630 | 1010 | 820 | 870 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 20 | 110 | 10 | 50 | 40 | 50 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 46000 | 35000 | 140000 | 48000 | 38000 | 51000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 366000 | 546000 | 670000 | 595000 | 599000 | 586000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 190 | <10 | <10 | <10 | <10 | <10 |
| Barium | ug/l | -- | mg/L | -- | 30 | 60 | 50 | 50 | 50 | 50 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <2 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 60 | 170 | 100 | 150 | 210 | 150 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 45000 | 67000 | 79000 | 72000 | 65000 | 69000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 2 | 3 | 2 | 5 | 10 | 3 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.3 | 1.4 | 2 | 0.8 | 1.4 | 0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | 2 | 5 | 5 | 3 | 4 | 3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 200 | 760 | 180 | 570 | 540 | 420 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 19000 | 32000 | 39000 | 32000 | 33000 | 30000 |
| Manganese | ug/l | -- | mg/L | -- | 20 | 74 | 81 | 73 | 137 | 170 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | 6 | <5 | <5 | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <5 | <5 | <5 | <5 | 5 |
| Potassium | ug/l | -- | mg/L | -- | 2000 | 5000 | 5000 | 4000 | 4000 | 6000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4010 | 5870 | 2500 | 3600 | 3800 | 4900 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | 0.3 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 31000 | 55000 | 63000 | 65000 | 68000 | 57000 |
| Strontium | ug/l | -- | mg/L | -- | 238 | 323 | 346 | 368 | 313 | 368 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 10 | 40 | <10 | <10 | 10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1 | 3 | 1 | 2 | 4 | 1 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <5 | <5 | <5 | <5 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 13420 | 3820 | 9420 | 8410 | 6440 | 6770 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 480 | 510 | 400 | 690 | 595 | 435 |
| pH (Field) | - | 8.5 | - | 8.5 | 6.8 | 8.4 | 6.6 | 7.7 | 7.4 | 7.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 1.5 | 17 | 3 | 11 | 14 | 3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 26-May-2004 | GS11 28-Aug-2004 | GS11 25-Nov-2004 | GS11 26-May-2005 | GS11 26-Aug-2005 ⁽⁸⁾ | GS11 15-Nov-2005 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|------------------------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 364000 | 137000 | 256000 | 435000 | -- | 467000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | -- | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 50 | 260 | 200 | 260 | -- | 310 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 5700 | 1400 | 1200 | 4000 | -- | 3000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 70000 | 40000 | 46000 | 54000 | -- | 64000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 184000 | 95300 | 109000 | 149000 | -- | 160000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 24800 | 11200 | 15900 | 27400 | -- | 22700 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 395900 | 188400 | 290500 | 415000 | -- | 506000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <200 | <200 | 600 | <100 | -- | 100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <200 | <200 | <200 | <100 | -- | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1120 | 1100 | 1210 | 1940 | -- | 1910 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 28 | 19 | 47 | 20 | -- | 60 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7800 | 19800 | 44100 | 7000 | -- | 30000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 696000 | 356000 | 524000 | 774000 | -- | 890000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 40 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 15 | 87 | 909 | 100 | -- | 10 |
| Barium | ug/l | -- | mg/L | -- | 76 | 28 | 53 | 70 | -- | 70 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | -- | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 211 | 106 | 178 | 330 | -- | 400 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 91800 | 38800 | 70600 | 102000 | -- | 122000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | <5 | <5 | 4 | -- | 7 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 1.4 | 0.1 | 1 | 1.1 | -- | 1 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1 | 0.8 | 2.6 | 2 | -- | 2 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1360 | 320 | 1910 | 2260 | -- | 1360 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | <0.5 | 0.6 | <1 | -- | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 40400 | 22200 | 27700 | 39000 | -- | 49000 |
| Manganese | ug/l | -- | mg/L | -- | 655 | 161 | 221 | 930 | -- | 670 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <1 | <1 | <1 | <5 | -- | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 8 | 2 | 6 | 9 | -- | 11 |
| Potassium | ug/l | -- | mg/L | -- | 5400 | 3800 | 6200 | 8000 | -- | 9000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4170 | 260 | 4840 | 4400 | -- | 6000 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 91300 | 41700 | 58900 | 95000 | -- | 96000 |
| Strontium | ug/l | -- | mg/L | -- | 470 | 239 | 325 | 463 | -- | 584 |
| Sulfur | ug/l | -- | mg/L | -- | 3700 | 6300 | 15300 | 2300 | -- | 10000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.1 | -- | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <5 | <5 | 57 | <10 | -- | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2.3 | 0.9 | 3.2 | 7 | -- | 9 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <5 | 9 | <10 | -- | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 2 | 1 | <1 | 2 | -- | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 6910 | 7010 | 8810 | 8810 | -- | 6900 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1110 | 610 | 700 | 660 | -- | 780 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.11 | 7.3 | 7 | 7.2 | -- | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | deg c | -- ⁽⁹⁾ | 12.5 | 16 | 3 | 8 | -- | 8.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 01-Jun-2006 | GS11 06-Sep-2006 | GS11 20-Nov-2006 | GS11 29-May-2007 | GS11 23-Aug-2007 ⁽⁸⁾ | GS11 01-May-2008 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|------------------------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 871000 | 159000 | 244000 | 579000 | -- | 563000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 160 | <20 | <20 | 238 | -- | 35 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 10400 | 170 | 1440 | 4680 | -- | 4650 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 406000 | 2000 | 9000 | 4000 | -- | 9000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 809000 | 49000 | 55000 | 83000 | -- | 105000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 265000 | 49000 | 62000 | 176000 | -- | 137000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 235000 | 17200 | 19000 | 33700 | -- | 39700 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 859000 | 158000 | 245000 | 601000 | -- | 538000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | 150 | -- | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | -- | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 18000 | 1850 | 2350 | 12800 | -- | 7760 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 220 | 30 | 70 | 120 | -- | 90 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 10000 | 14000 | 18000 | 90000 | -- | 38000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1550000 | 320000 | 452000 | 1090000 | -- | 962000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 800 | <10 | <10 | <10 | -- | 20 |
| Barium | ug/l | -- | mg/L | -- | 200 | 30 | 40 | 100 | -- | 100 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <1 | <1 | <1 | -- | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 1800 | 250 | 450 | 1940 | -- | 1600 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 232000 | 37000 | 60000 | 140000 | -- | 143000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 13 | 3 | 2 | 5 | -- | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <2 | 0.4 | 0.5 | 1.3 | -- | 2 |
| Copper | ug/l | 5 | mg/L | 0.005 | <10 | 2 | <1 | 1 | -- | 2 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1200 | 710 | 330 | 1900 | -- | 5400 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <10 | <1 | <1 | <1 | -- | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 68000 | 16000 | 23000 | 61000 | -- | 44000 |
| Manganese | ug/l | -- | mg/L | -- | 1900 | 100 | 250 | 1030 | -- | 1260 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <50 | <5 | <5 | <5 | -- | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <50 | <5 | <5 | 12 | -- | 16 |
| Potassium | ug/l | -- | mg/L | -- | 42000 | 6000 | 10000 | 19000 | -- | 15000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 7000 | 3800 | 1700 | 6200 | -- | 7300 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 175000 | 35000 | 41000 | 117000 | -- | 109000 |
| Strontium | ug/l | -- | mg/L | -- | 1010 | 208 | 319 | 806 | -- | 567 |
| Sulfur | ug/l | -- | mg/L | -- | 3300 | 4700 | 6000 | 30000 | -- | 13000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <0.1 | <0.1 | 0.4 | -- | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <100 | 10 | <10 | <10 | -- | 10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 10 | 3 | 1 | 6 | -- | 13 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <100 | <10 | 10 | <10 | -- | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 178 | <1 | 2 | 2 | -- | 1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 1900 | 11040 | 9990 | 4200 | -- | 8400 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 2000 | 660 | 545 | 1250 | -- | 1050 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.7 | 7 | 7.1 | 8.4 | -- | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | deg c | -- ⁽⁹⁾ | 17 | 9 | 2 | 11.8 | -- | 10.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 11-Aug-2008 | GS11 04-Nov-2008 | GS11 09-Apr-2009 | GS11 05-Aug-2009 | GS11 03-Nov-2009 | GS11 01-Jun-2010 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|------------------------|---------------------|---------------------|---------------------|
| | | | | | | | C-7 | GS-11 | GS-11 | SW-2 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 547000 | 659000 | 571000 | 654000 | 677000 | 638000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | 80 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 490 | 450 | 12000 | 520 | 470 | 410 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 5000 | 2000 | 28000 | 4000 | <2000 | 3000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 79000 | 95000 | 160000 | 120000 | 110000 | 110000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 173000 | 222000 | 160000 ⁽²¹⁾ | 230000 | 220000 | 230000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 35300 | 36200 | 53900 | 52900 | 40400 | 46900 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 480000 | 595000 | 580000 | 570000 | 680000 | 660000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 290 | 290 | <100 | 200 | 200 | 200 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | 10 | 60 | 30 | 100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 2520 | 2580 | 13000 | 3700 | 3300 | 3100 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | 100 | 300 | 200 | 300 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 50 | 20 | 92 | 53 | 22 | 28 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 34000 | 57000 | 93000 ⁽²¹⁾ | 25000 | 78000 | 34000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1010000 | 1230000 | 1050000 | 1200000 | 1280000 | 1200000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 10 | <10 | 16 | 9 | 8 | 18 |
| Barium | ug/l | -- | mg/L | -- | 90 | 90 | 130 | 100 | 110 | 120 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <0.5 | <0.5 | <0.5 | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 1500 | 1800 | 1900 | 2500 | 2000 | 2100 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 113000 | 136000 | 170000 | 140000 | 170000 | 180000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | 8 | <5 | <5 | <5 | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 1.6 | 1.4 | 2.3 | 1.6 | 1.3 | 2.1 |
| Copper | ug/l | 5 | mg/L | 0.005 | 3 | 3 | 2 | 3 | 3 | 5 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1430 | 660 | 5900 | 1300 | 900 | 1600 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | 0.8 | <0.5 | <0.5 | <0.5 |
| Magnesium | ug/l | -- | mg/L | -- | 48000 | 62000 | 46000 | 64000 | 76000 | 75000 |
| Manganese | ug/l | -- | mg/L | -- | 410 | 350 | 1500 | 530 | 420 | 560 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <1 | <1 | <1 | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 13 | 13 | 10 | 13 | 12 | 16 |
| Potassium | ug/l | -- | mg/L | -- | 11000 | 10000 | 22000 | 14000 | 15000 | 16000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 7600 | 6600 | 6500 | 6400 | 5700 | 6900 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 123000 | 150000 | 120000 | 200000 | 200000 | 200000 |
| Strontium | ug/l | -- | mg/L | -- | 766 | 555 | 790 | 830 | 890 | 980 |
| Sulfur | ug/l | -- | mg/L | -- | 11000 | 19000 | 29000 | 9700 | 27000 | 11000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 20 | <10 | 26 | <5 | <5 | 7 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 13 | 9 | 5 | 4 | 3 | 4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | 10 | <5 | 5 | <5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | 12 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 4740 | 7680 | 8270 | 8000 | 8960 | 10060 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1500 | 1550 | 1350 | 1826 | 1706 | 1937 |
| pH (Field) | - | 8.5 | - | 8.5 | 8 | 7.8 | 7.7 | 7.62 | 7.56 | 7.52 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 16.4 | 7.2 | 6.6 | 18.4 | 8.6 | 13.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 13-Aug-2010 | GS11 12-Nov-2010 | GS11 28-Apr-2011 | GS11 24-Aug-2011 | GS11 07-Nov-2011 | GS11 05-Jun-2012 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | | L-5 | C-1 | A-2 | C-4 | L-4 | GS-11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 576000 | 760000 | 518000 | 500000 | 716000 | 680000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | 70 | <20 | <20 | 76 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 220 | 610 | 11000 | 470 | 310 | 8000 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 3000 | 33000 | 3000 | 3000 | 53000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 110000 | 120000 | 180000 | 99000 | 130000 | 260000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 240000 | 240000 | 140000 | 270000 | 270000 | 210000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 41400 | 45600 | 47300 | 39800 | 42300 | 90000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 610000 | 780000 | 510000 | 790000 | 770000 | 630000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 100 | 500 | 700 | 200 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 30 | 20 | 40 | 120 | 80 | 12 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 2900 | 3900 | 13000 | 2900 | 2600 | 13000 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | <100 | 100 | 500 | 800 | 300 | <100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 35 | 39 | 150 | 31 | 39 | 140 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 81000 | 34000 | 71000 | 330000 | 87000 | 54000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1190000 | 1340000 | 910000 | 1500000 | 1390000 | 1230000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 12 | 10 | 18 | 8 | 8 | 20 |
| Barium | ug/l | -- | mg/L | -- | 110 | 110 | 130 | 140 | 120 | 210 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 2000 | 2200 | 1700 | 2600 | 2500 | 2400 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 160000 | 180000 | 150000 | 210000 | 180000 | 180000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | <5 | <5 | <5 | <5 | 5.1 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 2.1 | 1.4 | 2.2 | 1.6 | 1.7 | 3.2 |
| Copper | ug/l | 5 | mg/L | 0.005 | 6 | 4 | 4 | 5 | 4 | 5.1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 2100 | 1600 | 2200 | 800 | 1900 | 9800 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | <0.5 | 0.7 | <0.5 | <0.5 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 69000 | 84000 | 42000 | 82000 | 85000 | 64000 |
| Manganese | ug/l | -- | mg/L | -- | 550 | 730 | 730 | 650 | 500 | 1600 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <1 | <1 | <1 | 1.4 | <0.5 | 0.66 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 16 | 13 | 9 | 16 | 13 | 16 |
| Potassium | ug/l | -- | mg/L | -- | 13000 | 16000 | 26000 | 21000 | 18000 | 31000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6300 | 6500 | 5900 | 5800 | 5800 | 6600 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 190000 | 220000 | 110000 | 240000 | 230000 | 200000 |
| Strontium | ug/l | -- | mg/L | -- | 890 | 1000 | 800 | 1100 | 1100 | 1200 |
| Sulfur | ug/l | -- | mg/L | -- | 29000 | 13000 | 25000 | 110000 | 30000 | 23000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | 0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 9 | <5 | 36 | 5 | 8 | <5.0 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 5 | 4 | 3 | 4.3 | 3.6 | 5.3 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <5 | 18 | <5 | <5 | 8.8 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | 2 | 1 | 1 | <1 | 9 | 21 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6820 | 6360 | 10990 | 6900 | 7320 | 4870 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1708 | 1981 | 1396 | 1885 | 1887 | 1889 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.08 | 6.88 | 7.39 | 7.68 | 7.61 | 7.57 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 18.5 | 5.1 | 13.8 | 15.9 | 9.4 | 16.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|-----------------------|-------------|-----------------------------|-------------|--------------------|---------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 29-Aug-2012 | 19-Nov-2012 | 22-Apr-2013 ⁽¹⁰⁾ | 06-Sep-2013 | 29-Nov-2013 | 09-May-2014 |
| | | | | | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 750000 | 740000 | 770000 | 750000 | 780000 | 360000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 3.7 | 0.6 | 174.69 | 7.77 | 4.69 | 130.63 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 200 | 200 | 24000 | 950 | 1100 | 3500 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 4000 | 6000 | <2000 | 4000 | 4000 | 8000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 140000 | 130000 | 410000 | 130000 | 130000 | 79000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 310000 | 320000 | 190000 | 280000 | 280000 | 97000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 53000 | 47000 | 150000 | 56000 | 45000 | 25000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 910000 | 980000 | 720000 | 750000 | 760000 | 350000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 310 | 450 | <100 | 410 | 480 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 52 | <10 | <10 | 210 | 28 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | <1000 ⁽²⁴⁾ | 3800 | 27000 | 3800 | 3900 | 6200 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | 360 | 450 | <100 | 620 | 500 | <100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 110 | 100 | 620 | 63 | 34 | 120 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 160000 | 160000 | 6000 | 69000 | 56000 | 37000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1530000 | 1610000 | 1310000 | 1430000 | 1380000 | 582000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 8.2 | 8.3 | 31 | 12 | 6.5 | 11 |
| Barium | ug/l | -- | mg/L | -- | 150 | 150 | 230 | 120 | 140 | 68 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 2600 | 2400 | 2400 | 2500 | 2500 | 880 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 240000 | 230000 | 210000 | 200000 | 220000 | 93000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | <5.0 | 8.4 | <5.0 | <5.0 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 3.2 | 2.7 | 2.8 | 3.1 | 2.4 | 0.71 |
| Copper | ug/l | 5 | mg/L | 0.005 | 3.3 | 12 | 4.4 | 4.2 | 7.9 | <1.0 |
| Iron | ug/l | 300 | mg/L | 0.3 | 580 | 6200 | 16000 | 1900 | 2100 | 1000 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 95000 | 110000 | 55000 | 78000 | 90000 | 35000 |
| Manganese | ug/l | -- | mg/L | -- | 640 | 740 | 2200 | 840 | 720 | 570 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | 0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.67 | 1.1 | <0.50 | <0.50 | 0.52 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 21 | 19 | 12 | 19 | 17 | 4.1 |
| Potassium | ug/l | -- | mg/L | -- | 20000 | 21000 | 38000 | 20000 | 25000 | 16000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6900 | 5800 | 8300 | 7500 | 6200 | 2700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 240000 | 250000 | 170000 | 240000 | 240000 | 84000 |
| Strontium | ug/l | -- | mg/L | -- | 1500 | 1400 | 1200 | 1200 | 1300 | 540 |
| Sulfur | ug/l | -- | mg/L | -- | 55000 | 57000 | 14000 | 24000 | 23000 | 12000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 6.2 | 19 | 18 | 8.4 | 5.9 | <5.0 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 5.7 | 8.2 | 6.4 | 7.0 | 4.5 | 1.4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 11 | 7.3 | 21 | <5.0 | <5.0 | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 5.0 | <1.0 | 38 | <1.0 | 5.0 | 3.1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 4380 | 6990 | 930 | 5270 | -- ⁽²³⁾ | 2140 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 2440 | 804 | 804 | 2073 | 2204 | 909 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.81 | 7.42 | 7.71 | 7.47 | 7.69 | 8.10 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 16.1 | 4.8 | 6.7 | 15.3 | 0.7 | 16.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (<June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 |
|----------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|----------------------------|-------------|-------------|-------------|----------------------------|-----------------------------|
| | | | | | 27-Aug-2014 ^(D) | 24-Nov-2014 | 14-May-2015 | 17-Jun-2015 | 18-Aug-2015 ^(B) | 20-Nov-2015 ⁽²⁰⁾ |
| | | | | | GS11 | GS-11 | GS-11 | GS-11 | GS11 | 11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 590000 | 290000 | -- | -- | 800000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | 175.14 | 41.01 | 175.9 | -- | 23.76 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | 20000 | 1300 | 4900 | -- | 7000 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | 130000 | <2000 | -- | -- | 9000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | 270000 | 57000 | -- | -- | 130000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 170000 | 98000 | -- | -- | 270000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 98000 | 21000 | -- | -- | 54000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 540000 | 290000 | -- | -- | 810000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | 1170 | <100 | -- | -- | 2270 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | 129 | 32 | -- | -- | 142 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 25000 | 2900 | -- | -- | 10000 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | 1300 | <100 | -- | -- | 2410 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | 190 | 110 | 98 | -- | 110 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 87000 | 26000 | -- | -- | 5200 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 1060000 | 500000 | -- | -- | 1470000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 8.9 | 10 | -- | -- | <25 |
| Barium | ug/l | -- | mg/L | -- | -- | 120 | 48 | -- | -- | 150 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.50 | <0.50 | -- | -- | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | 1700 | 710 | 2400 | -- | 2500 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.10 | <0.10 | -- | -- | 0.11 |
| Calcium | ug/l | -- | mg/L | -- | -- | 150000 | 57000 | -- | -- | 170000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <5.0 | <5.0 | -- | -- | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 1.9 | 0.71 | -- | -- | 1.9 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | 6.0 | <1.0 | -- | -- | 6.2 |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | 1800 | 490 | -- | -- | 1000 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | 0.89 | <0.50 | -- | -- | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | -- | 49000 | 28000 | -- | -- | 68000 |
| Manganese | ug/l | -- | mg/L | -- | -- | 600 | 240 | -- | -- | 520 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | -- | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | 0.89 | <0.50 | -- | -- | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | 9.8 | 4.9 | -- | -- | 13 |
| Potassium | ug/l | -- | mg/L | -- | -- | 42000 | 11000 | -- | -- | 32000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 5400 | 560 | -- | -- | 5700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.10 | <0.10 | -- | -- | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | -- | 150000 | 69000 | -- | -- | 210000 |
| Strontium | ug/l | -- | mg/L | -- | -- | 870 | 370 | -- | -- | 1100 |
| Sulfur | ug/l | -- | mg/L | -- | -- | 34000 | 8100 | -- | -- | 14000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.050 | <0.050 | -- | -- | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | 34 | 15 | -- | -- | 6.2 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | 2.8 | 1.9 | -- | -- | 3.2 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | 16 | <5.0 | -- | -- | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | 36 | <1.0 | -- | -- | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 7260 | 3080 | 2990 | -- | 7660 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 1716 | 1011 | 899 | -- | 1374 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 7.84 | 8.08 | 7.97 | -- | 7.37 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 5.3 | 14.9 | 20.1 | -- | 6.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 15-Jun-2016 | 23-Aug-2016 | 13-Oct-2016 | 01-May-2017 | 20-Sep-2017 | 6-Nov-2017 |
| | | | | | GS11 | GS-11 | GS-11 | GS11 | GS-11 | GS-11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 748 | 535 | 603 | 508 | 739 | 528 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.02 | 0.04 | 0.01 | 0.08 | < 0.01 | 0.16 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 2.6 | 2.32 | 0.2 | 13.1 | 0.3 | 9.14 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 18 | 11 | 7 | 5 | 13 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 117 | 120 | 137 | 94 | 123 | 105 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 213 | 308 | 327 | 101 | 207 | 134 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 1920 | 2340 | 2470 | 1330 | 1900 | 1520 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 21.2 | 16.8 | 18 | 25.1 | 24.6 | 23.2 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 623 | 699 | 852 | 442 | 687 | 518 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 2 | 3.2 | 0.9 | 5.52 | 0.6 | 3.36 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 0.9 | 1.3 | < 0.1 | < 0.05 | < 0.1 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 6.39 | 5.7 | 3.51 | 16 | 3.3 | 12 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.05 | 0.03 | 0.07 | 0.06 | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 38 | 371 | 262 | 52 | 29 | 46 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | -- | 762 | 1148 | 871 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.11 | 0.08 | 0.07 | 0.19 | 0.24 | 0.29 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.05 | 0.06 | 0.06 | 0.04 | 0.1 | 0.09 |
| Barium | ug/l | -- | mg/L | -- | 0.129 | 0.163 | 0.146 | 0.111 | 0.142 | 0.154 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 2.39 | 3.05 | 2.74 | 1.99 | 2.38 | 1.86 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.00007 | 0.00005 | 0.00004 | 0.000022 | 0.000021 | 0.000067 |
| Calcium | ug/l | -- | mg/L | -- | 156 | 175 | 207 | 115 | 160 | 148 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.004 | 0.003 | 0.003 | 0.002 | 0.004 | 0.003 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0035 | 0.0024 | 0.0022 | 0.0018 | 0.0038 | 0.0016 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.008 | 0.0081 | 0.0045 | 0.0046 | 0.0056 | 0.0077 |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.08 | 0.731 | 0.984 | 0.57 | 2.36 | 1.13 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00017 | 0.00012 | 0.00009 | 0.00018 | 0.00019 | 0.00052 |
| Magnesium | ug/l | -- | mg/L | -- | 58.1 | 63.8 | 81.3 | 37.7 | 62.3 | 45.3 |
| Manganese | ug/l | -- | mg/L | -- | 0.997 | 1.03 | 0.851 | 0.413 | 0.98 | 0.483 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0005 | 0.0012 | 0.0006 | 0.0008 | 0.0005 | 0.0007 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0186 | 0.0167 | 0.0166 | 0.0102 | 0.0187 | 0.0112 |
| Potassium | ug/l | -- | mg/L | -- | 22.4 | 31.1 | 24.2 | 23.8 | 23 | 31.8 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 6.09 | 4.98 | 5.1 | 4.75 | 6.98 | 5.68 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium | ug/l | -- | mg/L | -- | 207 | 266 | 266 | 110 | 204 | 136 |
| Strontium | ug/l | -- | mg/L | -- | 1.1 | 1.21 | 1.47 | 0.745 | 1.2 | 0.945 |
| Sulfur | ug/l | -- | mg/L | -- | 13.9 | 153 | 103 | 21.8 | 12.3 | 18.9 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | < 0.005 | < 0.005 | < 0.005 | 0.017 | 0.016 | 0.02 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0052 | 0.0028 | 0.0028 | 0.0015 | 0.007 | 0.0019 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | < 0.005 | < 0.005 | 0.012 | 0.05 | 0.009 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 2.77 | 3.91 | 5.92 | 6.98 | 3.84 | 5.58 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1798 | 2550 | 2640 | 1338 | 1715 | 1355 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.5 | 7.7 | 8 | 7.5 | 7.4 | 7.9 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 12.2 | 16.2 | 12.5 | 7.8 | 15.8 | 10 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|-------------|-------------|-------------|-------------|--------------|-------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 24-Apr-2019 | 24-Sept-2019 | 31-Oct-2019 |
| | | | | | GS11 | GS-11 | GS-11 | GS11 | GS-11 | GS-11 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 631 | 609 | 727 | 392 | 793 | 631 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.14 | 0.01 | 0.02 | 0.15 | 0.04 | 0.10 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 17.2 | 1.18 | 5.78 | 14 | 5.27 | 5.51 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | < 3 | 10 | 6 | < 3 | 10 | 9 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 166 | 124 | 131 | 69 | 144 | 118 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 162 | 255 | 259 | 72.3 | 224 | 254 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 1630 | 2000 | 1970 | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 24.6 | 25.6 | 20.5 | 31.5 | 28.8 | 23.8 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 506 | 636 | 601 | 347 | 706 | 674 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 3.94 | 0.92 | 1.83 | 1.56 | 1.15 | 2.61 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | 0.18 | 0.06 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 22.5 | 4.1 | 9.8 | 18.1 | 9.6 | 9.3 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.07 | 0.02 | 0.07 | 0.030 | 0.03 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 37 | 155 | 64 | 45 | 91 | 137 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 947 | 1241 | 1193 | 588 | 1327 | 1262 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.11 | 0.13 | 0.1 | 0.1 | 0.09 | 0.160 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.08 | 0.08 | 0.1 | 0.06 | 0.090 | 0.090 |
| Barium | ug/l | -- | mg/L | -- | 0.138 | 0.149 | 0.142 | 0.111 | 0.19 | 0.167 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 2.25 | 2.59 | 1.82 | 1.19 | 2.46 | 2.37 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.00002 | <0.00014 | <0.000020 | 0.000022 | 0.000025 | 0.000038 |
| Calcium | ug/l | -- | mg/L | -- | 130 | 149 | 147 | 99.9 | 179 | 170 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.003 | 0.004 | 0.003 | 0.002 | 0.004 | 0.003 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0023 | 0.0035 | 0.0028 | 0.0015 | 0.0034 | 0.0025 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0062 | 0.0042 | 0.0049 | 0.0032 | 0.0037 | 0.007 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.4 | 1.69 | 0.481 | 0.679 | 1.21 | 1.12 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00007 | 0.00021 | 0.00009 | 0.00013 | 0.00012 | 0.00017 |
| Magnesium | ug/l | -- | mg/L | -- | 44 | 56.7 | 56.8 | 24.2 | 62.8 | 59.3 |
| Manganese | ug/l | -- | mg/L | -- | 0.457 | 1.21 | 0.709 | 0.501 | 1.11 | 0.727 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0005 | <0.001 | 0.0004 | 0.0007 | 0.0005 | 0.0007 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0109 | 0.0163 | 0.0111 | 0.0047 | 0.0144 | 0.0112 |
| Potassium | ug/l | -- | mg/L | -- | 31.8 | 25.3 | 31.6 | 22.2 | 34.1 | 33.2 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.27 | 5.88 | 4.21 | 3.85 | 5.8 | 4.47 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 140 | 230 | 189 | 69.5 | 251 | 221 |
| Strontium | ug/l | -- | mg/L | -- | 0.854 | 1.08 | 1.06 | 0.599 | 1.32 | 1.08 |
| Sulfur | ug/l | -- | mg/L | -- | 12.1 | 46.3 | 19.2 | 14.6 | 36.3 | 42.1 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00020 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <0.005 | 0.008 | <0.005 | 0.005 | < 0.005 | 0.01 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0023 | 0.006 | 0.0023 | 0.0011 | 0.0036 | 0.0025 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <0.005 | 0.024 | 0.013 | < 0.005 | 0.015 | 0.013 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | 0.015 | 0.01 | < 0.002 | < 0.002 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 6.05 | 4.47 | 11.7 | 7.66 | 12.6 | 8.5 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1431 | 1310 | 1069 | 1204 | 2400 | 2001 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.6 | 7.5 | 7.4 | 7.8 | 7.42 | 7.9 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 8.5 | 17.3 | 6.2 | 6.2 | 14.4 | 10.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 | GS11 | |
|----------------------------------|--------------|-------------------------|--------------|------------------------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|---------------|---------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 25-May-2020 | 29-Jul-2020 | 3-Nov-2020 | 25-May-2021 | 16-Aug-2021 | 11-Nov-2021 | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | | | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 | GS-11 |
| General Chemistry | | | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 657 | 711 | 661 | 650 | 802 | 694 | 671 | 792 | 770 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.23 | 2.09 | 0.01 | 0.04 | 0.02 | 0.04 | 0.18 | 0.0007 | 0.05 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 7.97 | 2.98 | 5.22 | 6.3 | 1.37 | 4.68 | 9.53 | 0.1 | 3.45 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 14 | 12 | 9 | 13 | 7 | 13 | -- | < 3 | 18 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 116 | 146 | 102 | 117 | 146 | 122 | 121 | 110 | 150 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 176 | 258 | 231 | 213 | 239 | 252 | 216 | 182 | 293 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- | 1816 | 1937 | 2184 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 23.7 | 25 | 17.6 | 16.8 | 21.9 | 21.2 | 11.9 | 21.4 | 13.5 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 609 | 703 | 632 | 610 | 648 | 622 | 529 | 668 | 727 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 4.02 | 1.36 | 0.16 | 3.35 | 1.37 | 2.64 | 4.03 | 0.31 | 1.31 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 0.16 | 0.12 | 0.19 | <0.05 | 0.08 | <0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 11.6 | 8.1 | 9.3 | 6.3 | 4.5 | 9.3 | 14.6 | 3.1 | 11.2 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽¹⁷⁾ | mg/L | 0.010 -0.030 ⁽¹⁷⁾ | 0.03 | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.05 | 0.02 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 73 | 78 | 77 | 64 | 64 | 56 | 18.1 | 22 | 70 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 1087 | 1271 | 1156 | 1129 | 1278 | 1244 | 1089 | 1161 | 1333 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.09 | 0.21 | 0.09 | 0.07 | 0.14 | 0.06 | 0.07 | 0.26 | 0.09 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.06 | 0.09 | 0.09 | 0.05 | 0.08 | 0.04 | -- | 0.09 | 0.11 |
| Barium | ug/l | -- | mg/L | -- | 0.163 | 0.19 | 0.154 | 0.142 | 0.174 | 0.168 | 0.18 | 0.128 | 0.204 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | < 0.00011 | < 0.0001 | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0002 | < 0.0005 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 2.11 | 2.44 | 2.05 | 2.13 | 2.66 | 2.16 | 2.71 | 2.19 | 1.95 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000048 | 0.000044 | 0.000027 | 0.000054 | 0.000022 | 0.000019 | 0.000027 | 0.000035 | < 0.000070 |
| Calcium | ug/l | -- | mg/L | -- | 153 | 176 | 149 | 154 | 159 | 154 | 135 | 170 | 174 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.003 | 0.004 | 0.003 | 0.003 | 0.004 | 0.003 | 0.003 | 0.004 | 0.004 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0035 | 0.0043 | 0.0025 | 0.0034 | 0.0037 | 0.003 | 0.003 | 0.0037 | 0.0036 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0065 | 0.0032 | 0.0036 | 0.0064 | 0.0025 | 0.003 | 0.0043 | 0.003 | 0.0017 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.582 | 1.19 | 0.666 | 0.348 | 1.2 | 0.472 | 0.283 | 1.09 | 0.776 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00015 | 0.00022 | 0.00012 | 0.00019 | 0.00015 | 0.00008 | 0.00022 | 0.00025 | 0.00014 |
| Magnesium | ug/l | -- | mg/L | -- | 50.9 | 57.6 | 52.3 | 54.9 | 56.6 | 57.9 | 46.7 | 59.1 | 59.3 |
| Manganese | ug/l | -- | mg/L | -- | 0.778 | 1.33 | 0.657 | 0.568 | 1.12 | 0.787 | 0.631 | 0.915 | 1.24 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0006 | 0.0005 | 0.0006 | 0.0006 | 0.0005 | 0.0005 | 0.0006 | 0.0005 | < 0.0005 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0122 | 0.0153 | 0.0087 | 0.0119 | 0.0146 | 0.009 | 0.009 | 0.0145 | 0.012 |
| Potassium | ug/l | -- | mg/L | -- | 30.5 | 33.3 | 37.8 | -- | 28.4 | 29.2 | 42.1 | 21.5 | 38.9 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.9 | 6.34 | 4.04 | 5.22 | 5.68 | 4.62 | 5.49 | 6.13 | 5.36 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | 0.0002 |
| Sodium | ug/l | -- | mg/L | -- | 179 | 235 | 211 | 197 | 245 | 229 | 200 | 228 | 229 |
| Strontium | ug/l | -- | mg/L | -- | 4.9 | 1.14 | 0.944 | 1.01 | 1.07 | 1.03 | 0.98 | 1.15 | 1.15 |
| Sulfur | ug/l | -- | mg/L | -- | < 0.0001 | 22.8 | 22.5 | 20.5 | 24.1 | 20.5 | 18.1 | 9.3 | 21 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.0001 | < 0.0003 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | < 0.005 | 0.012 | < 0.005 | < 0.005 | 0.009 | < 0.005 | < 0.005 | 0.016 | < 0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0022 | 0.0039 | 0.0019 | 0.0023 | 0.0037 | 0.0021 | 0.0018 | 0.0042 | 0.0031 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | 0.011 | < 0.005 | 0.01 | 0.01 | 0.013 | < 0.005 | 0.005 | 0.007 |
| Phenols | | | | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 9.3 | 10.7 | 14.9 | 5.2 | 10 | 4.6 | 10.5 | 7.7 | 2 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 350 | 691 | 1771 | -- | 1780 | 2380 | 1910 | 1990 | 2030 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.9 | 9.3 | 6.8 | 7.4 | 7.6 | 7.7 | 7.8 | 7.3 | 7.74 |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | deg c | -- ⁽⁹⁾ | 16.3 | 27.7 | 6.6 | 12.3 | 16.2 | 7.4 | 13.9 | 16.5 | 11.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS11 | GS11 | GS11 |
|----------------------------------|--------------|-------------------------|--------------|-----------------------------|---------------|---------------|---------------|
| | (<June 2016) | PWQO | (June 2016+) | PWQO | 05-May-2023 | 14-Aug-2023 | 29-Sept-2023 |
| | | | | | GS-11 | GS-11 | GS-11 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁹⁾ | mg/L | -- ⁽⁹⁾ | 594 | 656 | 804 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.20 | 0.06 | 0.0095 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 20.5 | 3.60 | 0.69 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 23 | 13 | 5 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 87 | 120 | 121 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 186 | 215 |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | 1950 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 7.0 | 14.6 | 27.1 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 486 | 484 | 644 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 6.03 | 2.29 | 1.67 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | 0.14 | 0.08 | <0.40 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 21.0 | 7.1 | 3.5 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.05 | 0.03 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 57 | 18 | 11 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 823 | 984 | 1070 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.17 | 0.19 | 0.51 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | 0.06 | 0.08 |
| Barium | ug/l | -- | mg/L | -- | 0.127 | 0.144 | 0.161 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0002 | <0.0001 | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 1.65 | 1.92 | 2.24 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | < 0.000028 | 0.00002 | 0.000031 |
| Calcium | ug/l | -- | mg/L | -- | 126 | 128 | 169 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.003 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0023 | 0.0031 | 0.0039 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0034 | 0.0042 | 0.0028 |
| Iron | ug/l | 300 | mg/L | 0.3 | 4.41 | 1.34 | 4.63 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00023 | 0.00019 | 0.00030 |
| Magnesium | ug/l | -- | mg/L | -- | 31.1 | 39.8 | 53.8 |
| Manganese | ug/l | -- | mg/L | -- | 0.283 | 1.05 | 1.32 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0007 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0057 | 0.0101 | 0.0130 |
| Potassium | ug/l | -- | mg/L | -- | 31.7 | 29.5 | 25.8 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.78 | 5.12 | 6.79 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 113 | 172 | 207 |
| Strontium | ug/l | -- | mg/L | -- | 0.822 | 0.882 | 1.16 |
| Sulfur | ug/l | -- | mg/L | -- | 14.7 | 7.49 | 7.46 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.0001 | <0.00005 | <0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.010 | 0.013 | 0.031 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0018 | 0.0034 | 0.0064 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.009 | 0.005 | 0.007 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁹⁾ | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | <0.001 | <0.001 |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 3.6 | 4.3 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1660 | 1474 | 1667 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.70 | 7.66 | 7.63 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 8.1 | 16.9 | 14.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 30-Apr-1992 | 08-Sep-1992 | 28-Nov-1992 | 04-May-1993 | 29-Aug-1993 | 11-Nov-1993 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 52000 | 60000 | 68000 | 53000 | 72000 | 69000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 9000 | 13000 | 16000 | 11000 | 16000 | 17000 |
| Color | color unit | -- | 6 | 10 | 9 | 9 | 8 | 7 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 72000 | 78000 | 78000 | 66000 | 96000 | 91000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 230 | <100 | <100 | 150 | <100 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 320 | 250 | 460 | 410 | 500 | 470 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 320 | 250 | 450 | 410 | 500 | 400 |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 40 | <30 | 40 | <30 | 40 | <10 |
| Sulphate | mg/L | 128-429 (BC FW) | 24000 | 18000 | 22000 | 21000 | 17000 | 20000 |
| Total Dissolved Solids | mg/L | -- | 110000 | 130000 | 130000 | 120000 | 140000 | 130000 |
| Total Organic Carbon | mg/L | -- | 3400 | 8800 | 7700 | 5100 | 8300 | 6500 |
| Total Suspended Solids | mg/L | -- | 8000 | 16000 | 6000 | 7000 | 4000 | 8000 |
| Turbidity | ntu | -- ⁽⁸⁾ | 3 | 5.1 | 2.6 | 2.5 | 4.9 | 2.4 |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 110 | 200 | <10 | 90 | <30 | <30 |
| Barium | mg/L | -- | 20 | 20 | 20 | 50 | 30 | 20 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | -- | <10 | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 60 | <10 | 60 | 60 | 80 | 80 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.2 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | mg/L | -- | 14000 | 18000 | 18000 | 15000 | 22000 | 20000 |
| Chromium | mg/L | 14 | <10 | <10 | <10 | <10 | <10 | <10 |
| Cobalt | mg/L | 0.0009 | <10 | <10 | -- | <0.4 | <0.4 | <0.4 |
| Copper | mg/L | 0.005 | 6 | <5 | <5 | <5 | <5 | <5 |
| Iron | mg/L | 0.3 | 160 | 320 | 90 | 120 | <10 | 130 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesium | mg/L | -- | 9000 | 8000 | 8000 | 7000 | 10000 | 10000 |
| Manganese | mg/L | -- | 110 | 180 | 40 | 50 | <10 | <10 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | 0.3 | <0.2 | <0.2 | <0.2 | <0.2 | 0.2 |
| Molybdenum | mg/L | 0.04 | <10 | <10 | -- | <10 | <10 | <10 |
| Nickel | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | mg/L | -- | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Selenium | mg/L | 0.1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Silicon | mg/L | -- | 1100 | 400 | -- | 3800 | -- | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 10000 | 11000 | 11000 | 8000 | 10000 | 11000 |
| Strontium | mg/L | -- | 10 | 100 | 110 | 171 | 210 | <7 |
| Sulfur | mg/L | -- | 7000 | 19000 | -- | 13000 | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <50 | <50 | -- | <5 | <5 | <5 |
| Tin | mg/L | -- | <50 | <50 | -- | <50 | -- | -- |
| Titanium | mg/L | -- | <10 | <10 | -- | <10 | -- | -- |
| Vanadium | mg/L | 0.006 | <10 | <10 | -- | <7 | <7 | <7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | <10 | 20 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11400 | 8500 | 13300 | 11000 | 8200 | 12400 |
| Conductivity (Field) | uS/cm | -- | 238 | 225 | 190 | 205 | 180 | 220 |
| pH (Field) | - | 8.5 | 6.5 | 7.3 | 7.3 | 6.6 | 8.1 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 8 | 15 | 2 | 17 | 25 | 3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|--------------------|-------------|
| | | | 04-Jun-1994 | 07-Sep-1994 | 24-Nov-1994 | 28-May-1995 | 11-Sep-1995 | 07-Nov-1995 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 79000 | 79000 | -- | 80000 | 84000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | <20 | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 19000 | 19000 | 20000 | 22000 | 22000 | 21000 |
| Color | color unit | -- | -- | -- | -- | 26 | 3 | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 6200 | 9200 | -- | 7800 | 8200 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 110000 | 95000 | -- | 113000 | 105000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | 30 | 30 | 10 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 140000 | 140000 | -- | 160000 | 172000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | 120 | 120 | 80 |
| Barium | mg/L | -- | -- | -- | -- | 20 | 20 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | <10 | <10 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | 70 | 80 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | <0.15 | <0.15 | -- |
| Calcium | mg/L | -- | -- | -- | -- | 27000 | 24000 | -- |
| Chromium | mg/L | 14 | -- | -- | -- | <10 | <10 | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | <0.4 | <0.4 | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | <5 | <5 | -- |
| Iron | mg/L | 0.3 | -- | -- | 200 | 270 | 220 | 30 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | <2 | <2 | -- |
| Magnesium | mg/L | -- | -- | -- | -- | 11000 | 11000 | -- |
| Manganese | mg/L | -- | -- | -- | -- | 220 | 150 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | <0.2 | <0.2 | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | <10 | <10 | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | <10 | <10 | -- |
| Potassium | mg/L | -- | -- | -- | -- | 2000 | 2000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | 300 | 200 | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | <0.1 | <0.1 | -- |
| Sodium | mg/L | -- | 11000 | 6000 | -- | 11000 | 14000 | -- |
| Strontium | mg/L | -- | 120 | 120 | -- | 139 | 141 | -- |
| Sulfur | mg/L | -- | -- | -- | -- | 8000 | 7000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | <10 | <5 | -- |
| Tin | mg/L | -- | -- | -- | -- | <50 | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | <10 | <10 | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | <7 | <7 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | <10 | <10 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | <1 | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7600 | 9900 | 12900 | 9000 | -- ⁽²³⁾ | -- |
| Conductivity (Field) | uS/cm | -- | 220 | 230 | 235 | 265 | 285 | 280 |
| pH (Field) | - | 8.5 | 7.2 | 8 | 7 | 7 | 7.8 | 8.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 19 | 17.5 | 1.5 | 20 | 16 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 17-Jul-1996 | 22-Nov-1996 | 10-Jun-1997 | 09-Sep-1997 | 06-Apr-1998 | 09-Jun-1998 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 78000 | 87000 | 76000 | 85000 | 53000 | 87000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 22000 | 16000 | 17000 | 19000 | 14000 | 21000 |
| Color | color unit | -- | 6 | 3 | 5 | 5 | 6 | 16 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 7700 | 6700 | 7300 | 9100 | 4500 | 9300 |
| Hardness, Calcium Carbonate | mg/L | -- | 89000 | 105000 | 38000 | 96000 | 66000 | 92000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | 370 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | 880 | 1220 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 80 | 30 | 30 | 60 | 30 | 70 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 12000 | 15000 |
| Total Dissolved Solids | mg/L | -- | 144000 | 156000 | 144000 | 152000 | 108000 | 152000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 100 | 80 | 100 | <30 | 60 | <30 |
| Barium | mg/L | -- | <10 | 20 | <10 | 20 | 10 | 10 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | 10 | <10 | <10 | <10 | <10 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 40 | 50 | 50 | 50 | 120 | 30 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | mg/L | -- | 19000 | 24000 | 21000 | 22000 | 15000 | 22000 |
| Chromium | mg/L | 14 | <10 | 20 | <10 | <10 | <10 | <10 |
| Cobalt | mg/L | 0.0009 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 | <0.4 |
| Copper | mg/L | 0.005 | <5 | <5 | 11 | <5 | <5 | <5 |
| Iron | mg/L | 0.3 | 150 | 650 | 150 | 90 | 190 | 580 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <2 | <2 | <2 | <2 | <2 | <2 |
| Magnesium | mg/L | -- | 10000 | 11000 | 8000 | 10000 | 7000 | 9000 |
| Manganese | mg/L | -- | 60 | 100 | 60 | 140 | 60 | 110 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | 0.5 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Molybdenum | mg/L | 0.04 | <10 | <30 | <10 | <10 | <10 | <10 |
| Nickel | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | mg/L | -- | 2000 | 2000 | 2000 | 2000 | 1000 | 2000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 200 | 800 | 500 | <100 | 1500 | 600 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 12000 | 11000 | 11000 | 13000 | 6000 | 12000 |
| Strontium | mg/L | -- | 122 | 109 | 109 | 105 | 76 | 119 |
| Sulfur | mg/L | -- | 6000 | <3000 | 6000 | 5000 | 5000 | 6000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | <5 | <5 | <5 |
| Tin | mg/L | -- | -- | <50 | -- | <50 | <50 | <50 |
| Titanium | mg/L | -- | <10 | 20 | <10 | <10 | <10 | <10 |
| Vanadium | mg/L | 0.006 | <7 | <7 | <7 | <7 | <7 | <7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | <10 | <10 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | 4 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8200 | 10000 | 10000 | 9000 | 10200 | 11100 |
| Conductivity (Field) | uS/cm | -- | 150 | 150 | 175 | 210 | 170 | 210 |
| pH (Field) | - | 8.5 | 8.3 | 7 | 7.5 | 6.8 | 6.99 | 8.71 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 23 | 1.5 | 21 | 21 | 6 | 20.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 25-Jun-1998 | 17-Jul-1998 | 20-Aug-1998 | 26-Sep-1998 | 20-Oct-1998 | 20-Dec-1998 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 86000 | 83000 | 88000 | 85000 | 94000 | 88000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | -- | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 22000 | 18000 | 20000 | 20000 | 23000 | 27000 |
| Color | color unit | -- | 7 | 7 | 6 | -- | 4 | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 8600 | 8100 | 7500 | 9000 | 8300 | 9100 |
| Hardness, Calcium Carbonate | mg/L | -- | 101000 | 97000 | 110000 | 106000 | 117000 | 113000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | -- | <100 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | 120 | 110 | <100 | -- | <100 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 770 | 820 | 1120 | -- | 860 | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 30 | 40 | 60 | 50 | 30 | 70 |
| Sulphate | mg/L | 128-429 (BC FW) | 15000 | 11000 | 121000 | -- | 14000 | -- |
| Total Dissolved Solids | mg/L | -- | 148000 | 152000 | 156000 | 160000 | 165000 | 188000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 70 | 60 | 50 | <30 | <30 | <30 |
| Barium | mg/L | -- | <10 | <10 | 10 | -- | <10 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | <10 | -- | <10 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 50 | 40 | 50 | -- | 50 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | -- | <0.15 | -- |
| Calcium | mg/L | -- | 24000 | 24000 | 21000 | -- | 27000 | -- |
| Chromium | mg/L | 14 | <10 | <10 | <10 | -- | 20 | -- |
| Cobalt | mg/L | 0.0009 | <0.4 | <0.4 | 7.2 | -- | <0.4 | -- |
| Copper | mg/L | 0.005 | <5 | <5 | <5 | -- | <5 | -- |
| Iron | mg/L | 0.3 | 110 | 190 | 80 | 130 | 250 | 170 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <2 | <2 | <2 | -- | <2 | -- |
| Magnesium | mg/L | -- | 10000 | 9000 | 14000 | -- | 12000 | -- |
| Manganese | mg/L | -- | 40 | 60 | 20 | 80 | 50 | 90 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | <0.2 | <0.2 | <0.2 | -- | <0.2 | -- |
| Molybdenum | mg/L | 0.04 | <10 | <10 | <10 | -- | 110 | -- |
| Nickel | mg/L | 0.025 | <10 | <10 | <10 | -- | <10 | -- |
| Potassium | mg/L | -- | 3000 | <1000 | 2000 | -- | 2000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 400 | 600 | 100 | -- | 100 | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | -- | <0.1 | -- |
| Sodium | mg/L | -- | 12000 | 12000 | 14000 | 14000 | 13000 | 14000 |
| Strontium | mg/L | -- | 126 | 88 | 120 | 116 | 117 | 133 |
| Sulfur | mg/L | -- | 5000 | 4000 | 5000 | -- | 6000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | -- | <5 | -- |
| Tin | mg/L | -- | <50 | <50 | <50 | -- | <50 | -- |
| Titanium | mg/L | -- | <10 | <10 | <10 | -- | 150 | -- |
| Vanadium | mg/L | 0.006 | <7 | <7 | <7 | -- | 59 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | -- | <10 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | -- | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9900 | 8000 | 9300 | 10400 | 10100 | 13800 |
| Conductivity (Field) | uS/cm | -- | 210 | 300 | 270 | 220 | 330 | 220 |
| pH (Field) | - | 8.5 | 8.89 | 7.2 | 8.4 | 6.92 | 7.78 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 29.5 | 27 | 20.5 | 15 | 10 | -2.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 23-Apr-1999 | 26-May-1999 | 25-Jun-1999 | 29-Jul-1999 | 31-Aug-1999 | 30-Sep-1999 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 87000 | 103000 | 103000 | 90000 | 91000 | 98000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | <20 | -- | -- | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 20000 | 20000 | 19000 | 20000 | 24000 | 20000 |
| Color | color unit | -- | -- | 9 | -- | -- | 5 | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 10100 | 10200 | 10300 | 13400 | 10500 | 11000 |
| Hardness, Calcium Carbonate | mg/L | -- | 101000 | 104000 | 110000 | 99000 | 108000 | 108000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 30 | 50 | 30 | 50 | 100 | 60 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 96000 | 160000 | 156000 | 156000 | 164000 | 176000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 170 | <30 | 60 | 80 | <30 | <30 |
| Barium | mg/L | -- | -- | 20 | -- | -- | 30 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <10 | -- | -- | <10 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | 70 | -- | -- | 80 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.15 | -- | -- | <0.15 | -- |
| Calcium | mg/L | -- | -- | 25000 | -- | -- | 25000 | -- |
| Chromium | mg/L | 14 | -- | <10 | -- | -- | <10 | -- |
| Cobalt | mg/L | 0.0009 | -- | <0.4 | -- | -- | <0.4 | -- |
| Copper | mg/L | 0.005 | -- | <5 | -- | -- | <5 | -- |
| Iron | mg/L | 0.3 | 60 | 50 | 30 | 360 | 610 | 450 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <2 | -- | -- | <2 | -- |
| Magnesium | mg/L | -- | -- | 10000 | -- | -- | 11000 | -- |
| Manganese | mg/L | -- | <10 | <10 | <10 | 140 | 260 | 140 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.2 | -- | -- | <0.2 | -- |
| Molybdenum | mg/L | 0.04 | -- | <10 | -- | -- | <10 | -- |
| Nickel | mg/L | 0.025 | -- | <10 | -- | -- | <10 | -- |
| Potassium | mg/L | -- | -- | 2000 | -- | -- | 3000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 300 | -- | -- | 300 | -- |
| Silver | mg/L | 0.0001 | -- | <0.1 | -- | -- | <0.1 | -- |
| Sodium | mg/L | -- | 12000 | 14000 | 15000 | 15000 | 17000 | 16000 |
| Strontium | mg/L | -- | 116 | 130 | 124 | 115 | 127 | 127 |
| Sulfur | mg/L | -- | -- | 5000 | -- | -- | 5000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <5 | -- | -- | <5 | -- |
| Tin | mg/L | -- | -- | <50 | -- | -- | <50 | -- |
| Titanium | mg/L | -- | -- | <10 | -- | -- | <10 | -- |
| Vanadium | mg/L | 0.006 | -- | <7 | -- | -- | <7 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | 10 | -- | -- | <10 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | -- | -- | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 12200 | 9200 | 9000 | 9500 | 6700 | -- |
| Conductivity (Field) | uS/cm | -- | 185 | 210 | 270 | 260 | 230 | 277 |
| pH (Field) | - | 8.5 | 8.2 | 8.3 | 8.5 | 7.6 | 8.5 | 8.02 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 15.3 | 17 | 24 | 27 | 25.5 | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-----------------------------|-------------|-------------|-------------|
| | | | 27-Oct-1999 | 29-Nov-1999 | 21-Dec-1999 ⁽²⁵⁾ | 28-Apr-2000 | 01-Jun-2000 | 29-Jun-2000 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 94000 | 93000 | -- | 88000 | 97000 | 94000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 23000 | 26000 | -- | 16000 | 14000 | 14000 |
| Color | color unit | -- | -- | -- | -- | -- | 9 | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9100 | 10200 | -- | 6900 | 8200 | 8200 |
| Hardness, Calcium Carbonate | mg/L | -- | 104000 | 110000 | -- | 99000 | 99000 | 96000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 60 | 50 | -- | 40 | 30 | 50 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 160000 | 164000 | -- | 136000 | 148000 | 128000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <30 | <30 | -- | <50 | 330 | 220 |
| Barium | mg/L | -- | -- | -- | -- | -- | 860 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | <2 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | 110 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | <0.1 | -- |
| Calcium | mg/L | -- | 25000 | 26000 | -- | 23000 | 23000 | 22000 |
| Chromium | mg/L | 14 | -- | -- | -- | -- | <10 | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | <0.4 | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | <10 | -- |
| Iron | mg/L | 0.3 | 50 | 120 | -- | 130 | 190 | 340 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | <2 | -- |
| Magnesium | mg/L | -- | 10000 | 11000 | -- | 10000 | 10000 | 10000 |
| Manganese | mg/L | -- | <10 | 20 | -- | 30 | 40 | 60 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | <0.1 | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | <10 | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | <10 | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | 2000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | 2000 | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | <0.1 | -- |
| Sodium | mg/L | -- | 17000 | 17000 | -- | 13000 | 13000 | 13000 |
| Strontium | mg/L | -- | 130 | 131 | -- | 102 | 140 | 108 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | 2000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | <2 | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | <10 | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | <2 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | 30 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | -- | -- | 13470 | 7500 | 12700 |
| Conductivity (Field) | uS/cm | -- | 269 | 267 | -- | 304 | 220 | 300 |
| pH (Field) | - | 8.5 | 8.02 | 7.8 | -- | 8.48 | 6.89 | 8.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 10 | 3 | -- | 16.3 | 11 | 26 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-----------------------------|
| | | | 30-Jul-2000 | 18-Aug-2000 | 27-Sep-2000 | 30-Oct-2000 | 01-Dec-2000 | 21-Dec-2000 ⁽²⁵⁾ |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 99000 | 105000 | 96000 | 101000 | 97000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | <20 | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 19000 | 18000 | 19000 | 21000 | 24000 | -- |
| Color | color unit | -- | -- | 5 | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 8500 | 7600 | 7600 | 8100 | 5500 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 92000 | 103000 | 96000 | 105000 | 100000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 50 | 50 | 40 | 50 | 30 | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 204000 | 164000 | 116000 | 160000 | 136000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 260 | <50 | <50 | <50 | <50 | -- |
| Barium | mg/L | -- | -- | 20 | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <2 | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | 70 | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | -- | -- | -- | -- |
| Calcium | mg/L | -- | 22000 | 23000 | 22000 | 24000 | 22000 | -- |
| Chromium | mg/L | 14 | -- | <10 | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | 0.2 | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | <1 | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 380 | 260 | 140 | 160 | 680 | -- |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <1 | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 9000 | 11000 | 10000 | 11000 | 11000 | -- |
| Manganese | mg/L | -- | 110 | 200 | 90 | 50 | 150 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | <10 | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | <10 | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | 2000 | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 580 | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | <0.1 | -- | -- | -- | -- |
| Sodium | mg/L | -- | 15000 | 14000 | 14000 | 16000 | 14000 | -- |
| Strontium | mg/L | -- | 114 | 105 | 111 | 118 | 111 | -- |
| Sulfur | mg/L | -- | -- | 4000 | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <1 | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | <10 | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | <1 | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | <10 | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | 6300 | 10930 | 12030 | 12200 | -- |
| Conductivity (Field) | uS/cm | -- | 246 | 254 | 249 | 238 | 340 | -- |
| pH (Field) | - | 8.5 | 6.86 | 8.3 | 7.75 | 7.9 | 6.9 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 27 | 22.6 | 27 | 9.4 | 2 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 30-May-2001 | 10-Aug-2001 | 05-Apr-2002 | 06-Aug-2002 | 01-Nov-2002 | 12-May-2003 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 109000 | 89000 | 51000 | 87000 | 100000 | 102000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 20000 | 31000 | 11000 | 44000 | 44000 | 38000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 8300 | 11600 | 2300 | 11400 | 8400 | 6800 |
| Hardness, Calcium Carbonate | mg/L | -- | 108000 | 93000 | 69000 | 118000 | 134000 | 136000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | 140 | <100 | <100 | 100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1810 | 1290 | 210 | 1550 | 1160 | 1270 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 190 | 80 | 30 | 50 | 40 | 40 |
| Sulphate | mg/L | 128-429 (BC FW) | 13000 | 16000 | 26000 | 17000 | 31000 | 28000 |
| Total Dissolved Solids | mg/L | -- | 184000 | 184000 | 127000 | 224000 | 257000 | 240000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 110 | <50 | <50 | 30 | <10 | 20 |
| Barium | mg/L | -- | 20 | 20 | 10 | 40 | 20 | 20 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <2 | <2 | <2 | <1 | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 130 | 300 | <50 | 100 | 90 | 60 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 25000 | 19000 | 16000 | 24000 | 29000 | 33000 |
| Chromium | mg/L | 14 | <1 | <1 | <1 | 2 | <1 | 2 |
| Cobalt | mg/L | 0.0009 | <0.2 | 0.2 | 0.7 | 0.3 | 0.7 | 0.3 |
| Copper | mg/L | 0.005 | <1 | <1 | <1 | 2 | 1 | 2 |
| Iron | mg/L | 0.3 | 460 | 240 | 10 | 420 | 230 | 110 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Magnesium | mg/L | -- | 11000 | 11000 | 7000 | 14000 | 15000 | 13000 |
| Manganese | mg/L | -- | 140 | 240 | 110 | 191 | 156 | 124 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <10 | <10 | <10 | 6 | <5 | <5 |
| Nickel | mg/L | 0.025 | <10 | <10 | <10 | <5 | <5 | <5 |
| Potassium | mg/L | -- | 3000 | 3000 | <1000 | 3000 | 3000 | 3000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 1190 | 860 | 1560 | 320 | 800 | 200 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 15000 | 23000 | 9000 | 26000 | 29000 | 18000 |
| Strontium | mg/L | -- | 130 | 125 | 73 | 135 | 155 | 155 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | mg/L | 0.006 | 2 | <1 | <1 | 7 | 2 | 1 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | <5 | <5 | <5 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | 1 | 1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 10100 | 8530 | 9170 | 5320 | 6210 | 8980 |
| Conductivity (Field) | uS/cm | -- | 6.87 | 244 | 160 | 180 | 190 | 320 |
| pH (Field) | - | 8.5 | 7.79 | 9.2 | 6.9 | 9.6 | 7 | 8.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 12.9 | 27.1 | 0.5 | 22 | 4 | 15 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 26-Aug-2003 | 19-Nov-2003 | 26-May-2004 | 28-Aug-2004 | 25-Nov-2004 | 26-May-2005 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 87000 | 72000 | 113000 | 352000 | 152000 | 144000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 48000 | 20000 | 53800 | 151000 | 86000 | 115000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9200 | 5200 | 7700 | 20200 | 8500 | 11600 |
| Hardness, Calcium Carbonate | mg/L | -- | 121000 | 82000 | 149200 | 388800 | 198800 | 201000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | <200 | <200 | <200 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | <200 | <200 | <200 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 970 | 520 | 660 | 1260 | 850 | 1530 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 20 | 60 | 37 | <2 | 17 | 40 |
| Sulphate | mg/L | 128-429 (BC FW) | 32000 | 15000 | 17100 | 20600 | 28900 | 24000 |
| Total Dissolved Solids | mg/L | -- | 233000 | 157000 | 242000 | 656000 | 364000 | 452000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | 39 | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 10 | 20 | 11 | 55 | 56 | 10 |
| Barium | mg/L | -- | 10 | 10 | 27 | 54 | 28 | 30 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 100 | 50 | 80 | 256 | 100 | 150 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 22000 | 18000 | 32800 | 89000 | 47600 | 41000 |
| Chromium | mg/L | 14 | 2 | 1 | <5 | <5 | <5 | 1 |
| Cobalt | mg/L | 0.0009 | <0.2 | 0.6 | 0.4 | 0.7 | 0.1 | <0.2 |
| Copper | mg/L | 0.005 | <1 | 2 | 2.4 | 2.5 | 0.6 | <1 |
| Iron | mg/L | 0.3 | 110 | 1060 | 250 | 120 | 180 | 60 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <1 | <1 | <0.5 | <0.5 | <0.5 | <1 |
| Magnesium | mg/L | -- | 16000 | 9000 | 16300 | 40400 | 19400 | 24000 |
| Manganese | mg/L | -- | 42 | 570 | 115 | 57 | 240 | <10 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | <0.1 | <0.1 | <0.1 | 0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <5 | <5 | <1 | <1 | <1 | <5 |
| Nickel | mg/L | 0.025 | <5 | <5 | 2 | 9 | 2 | <5 |
| Potassium | mg/L | -- | 2000 | 2000 | 2300 | 4900 | 3100 | 3000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | <100 | 1900 | 220 | 4040 | 650 | 200 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 23000 | 10000 | 23700 | 94900 | 38700 | 54000 |
| Strontium | mg/L | -- | 130 | 113 | 185 | 428 | 249 | 276 |
| Sulfur | mg/L | -- | -- | -- | 6200 | 6800 | 9900 | 8000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <1 | <0.05 | <0.05 | <0.05 | <0.1 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | <10 | <5 | <5 | <5 | <10 |
| Vanadium | mg/L | 0.006 | 2 | <1 | <0.5 | 1.4 | <0.5 | 2 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <10 | 14 | 6 | <5 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7630 | 6380 | 7220 | 6940 | 8340 | 8990 |
| Conductivity (Field) | uS/cm | -- | 400 | 295 | 356 | 410 | 645 | 590 |
| pH (Field) | - | 8.5 | 8 | 7.5 | 7.78 | 8.1 | 7 | 7.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 16 | 1 | 17.8 | 15 | 2 | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 26-Aug-2005 | 15-Nov-2005 | 01-Jun-2006 | 06-Sep-2006 | 20-Nov-2006 | 29-May-2007 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 128000 | 180000 | 238000 | 218000 | 265000 | 298000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | 353 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 194000 | 106000 | 58000 | 63000 | 66000 | 67000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 17100 | 10200 | 16800 | 18000 | 23700 | 20300 |
| Hardness, Calcium Carbonate | mg/L | -- | 233000 | 253000 | 234000 | 224000 | 260000 | 293000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | <100 | 150 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 2680 | 830 | <50 | 1960 | 2840 | 9700 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 170 | 50 | 40 | 20 | 50 | 90 |
| Sulphate | mg/L | 128-429 (BC FW) | 29000 | 35000 | 19000 | 18000 | 21000 | 27000 |
| Total Dissolved Solids | mg/L | -- | 621000 | 495000 | 430000 | 426000 | 487000 | 516000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 20 | <10 | 20 | 10 | <10 | 10 |
| Barium | mg/L | -- | 40 | 30 | 40 | 30 | 40 | 50 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 270 | 190 | 290 | 400 | 490 | 660 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 42000 | 60000 | 59000 | 50000 | 63000 | 73000 |
| Chromium | mg/L | 14 | 4 | 6 | 2 | 3 | 2 | 3 |
| Cobalt | mg/L | 0.0009 | 0.2 | 0.3 | 0.4 | 0.3 | 0.4 | 0.6 |
| Copper | mg/L | 0.005 | <1 | <1 | <1 | <1 | <1 | 2 |
| Iron | mg/L | 0.3 | 120 | 180 | 310 | 140 | 370 | 430 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Magnesium | mg/L | -- | 31000 | 25000 | 21000 | 24000 | 25000 | 27000 |
| Manganese | mg/L | -- | 190 | 60 | 190 | 110 | 350 | 230 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <5 | <5 | <5 | <5 | <5 | <5 |
| Nickel | mg/L | 0.025 | <5 | <5 | <5 | <5 | 5 | 5 |
| Potassium | mg/L | -- | 8000 | 4000 | 8000 | 9000 | 11000 | 10000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 500 | 1700 | 600 | 700 | 1800 | 1600 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 99000 | 55000 | 33000 | 43000 | 45000 | 46000 |
| Strontium | mg/L | -- | 337 | 288 | 293 | 299 | 337 | 384 |
| Sulfur | mg/L | -- | 9700 | 11700 | 6300 | 6000 | 7000 | 9000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.4 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | mg/L | 0.006 | 2 | 2 | <1 | 2 | 2 | 1 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | <10 | <10 | 20 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | 1 | <1 | 6 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8720 | 7900 | 4500 | 11020 | 10510 | 11570 |
| Conductivity (Field) | uS/cm | -- | 1010 | 410 | 550 | 620 | 580 | 750 |
| pH (Field) | - | 8.5 | 6.7 | 7.9 | 8.5 | 7.2 | 7.2 | 8.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 30.5 | 1 | 26 | 10 | 3 | 23.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|--------------------|
| | | | 23-Aug-2007 | 25-Nov-2007 | 01-May-2008 | 11-Aug-2008 | 04-Nov-2008 | 09-Apr-2009 C-5 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 200000 | 181000 | 268000 | 186000 | 196000 | 221000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | 30 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 68000 | 68000 | 61000 | 64000 | 72000 | 58000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 19200 | 15100 | 17700 | 18100 | 16700 | 14300 |
| Hardness, Calcium Carbonate | mg/L | -- | 204000 | 201000 | 288000 | 199000 | 199000 | 240000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | -- | 120 | <100 | <100 | 300 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | -- | <100 | <100 | <100 | <10 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1600 | -- | 3840 | 1980 | 1160 | 2400 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | 300 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 150 | 40 | 40 | 40 | 20 | 25 |
| Sulphate | mg/L | 128-429 (BC FW) | 34000 | -- | 39000 | 36000 | 43000 | 40000 |
| Total Dissolved Solids | mg/L | -- | 432000 | 415000 | 495000 | 405000 | 437000 | 450000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 10 | -- | 10 | 20 | 10 | 7 |
| Barium | mg/L | -- | 50 | -- | 50 | 30 | 30 | 39 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | -- | <1 | <1 | <1 | <0.5 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 840 | 510 | 700 | 680 | 720 | 530 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 39000 | 41000 | 74000 | 37000 | 40000 | 57000 |
| Chromium | mg/L | 14 | 3 | -- | <5 | 4 | 2 | <5 |
| Cobalt | mg/L | 0.0009 | 0.5 | -- | 1 | 0.2 | 0.3 | <0.5 |
| Copper | mg/L | 0.005 | 1 | -- | 1 | <1 | <1 | 1 |
| Iron | mg/L | 0.3 | 1070 | 390 | 730 | 100 | 80 | 400 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <1 | -- | <1 | <1 | <1 | <0.5 |
| Magnesium | mg/L | -- | 26000 | 24000 | 25000 | 26000 | 24000 | 23000 |
| Manganese | mg/L | -- | 910 | 100 | 550 | 80 | 30 | 270 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <5 | -- | <5 | <5 | <5 | <1 |
| Nickel | mg/L | 0.025 | <5 | -- | 8 | <5 | <5 | 4 |
| Potassium | mg/L | -- | 10000 | -- | 8000 | 7000 | 7000 | 6500 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 800 | -- | 3400 | 400 | 500 | 2100 |
| Silver | mg/L | 0.0001 | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 49000 | 42000 | 45000 | 47000 | 48000 | 44000 |
| Strontium | mg/L | -- | 304 | -- | 340 | 287 | 267 | 280 |
| Sulfur | mg/L | -- | 11300 | -- | 13000 | 12000 | 14000 | 14000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.05 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | -- | <10 | <10 | <10 | 8 |
| Vanadium | mg/L | 0.006 | 5 | -- | 4 | 4 | 1 | 2 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | -- | <10 | <10 | <10 | 13 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 4520 | 8340 | 6030 | 5720 | 8630 | 5500 |
| Conductivity (Field) | uS/cm | -- | 700 | 500 | 550 | 600 | 525 | 600 |
| pH (Field) | - | 8.5 | 7.9 | 7.4 | 7.5 | 9.2 | 8.5 | 8.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 21.1 | 0.7 | 13.8 | 21.1 | 8.3 | 7.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 05-Aug-2009 | 03-Nov-2009 | 01-Jun-2010 | 13-Aug-2010 | 12-Nov-2010 | 28-Apr-2011 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 169000 | 209000 | 219000 | 224000 | 227000 | 269000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 83000 | 89000 | 89000 | 120000 | 96000 | 77000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 20700 | 18000 | 26100 | 21200 | 19000 | 18100 |
| Hardness, Calcium Carbonate | mg/L | -- | 180000 | 230000 | 240000 | 240000 | 250000 | 290000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | 200 | <100 | <100 | 100 | 200 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | <10 | <10 | <10 | <10 | <10 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1900 | 1800 | 1900 | 2800 | 1900 | 3200 |
| Nitrogen, Nitrate-Nitrite | -- | -- | <100 | 200 | <100 | <100 | 100 | 200 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 57 | 23 | 69 | 84 | 70 | 67 |
| Sulphate | mg/L | 128-429 (BC FW) | 43000 | 47000 | 40000 | 39000 | 35000 | 35000 |
| Total Dissolved Solids | mg/L | -- | 410000 | 495000 | 490000 | 540000 | 502000 | 510000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 17 | 8 | 35 | 16 | 11 | 9 |
| Barium | mg/L | -- | 26 | 34 | 48 | 32 | 40 | 48 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 760 | 760 | 750 | 870 | 780 | 730 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 31000 | 48000 | 53000 | 44000 | 51000 | 74000 |
| Chromium | mg/L | 14 | <5 | <5 | <5 | <5 | <5 | <5 |
| Cobalt | mg/L | 0.0009 | <0.5 | <0.5 | <0.5 | 0.6 | <0.5 | 0.8 |
| Copper | mg/L | 0.005 | <1 | <1 | 3 | 2 | 1 | 2 |
| Iron | mg/L | 0.3 | 200 | 300 | 600 | 1000 | 200 | 600 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <0.5 | <0.5 | <0.5 | 0.5 | <0.5 | <0.5 |
| Magnesium | mg/L | -- | 28000 | 33000 | 36000 | 36000 | 34000 | 29000 |
| Manganese | mg/L | -- | 48 | 66 | 210 | 250 | 29 | 150 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <1 | <1 | <1 | <1 | <1 | <1 |
| Nickel | mg/L | 0.025 | 5 | 5 | 6 | 6 | 6 | 5 |
| Potassium | mg/L | -- | 7800 | 7900 | 8000 | 8500 | 8400 | 9100 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 560 | 660 | 680 | 1500 | 620 | 1600 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 63000 | 75000 | 70000 | 85000 | 78000 | 58000 |
| Strontium | mg/L | -- | 270 | 290 | 350 | 290 | 320 | 390 |
| Sulfur | mg/L | -- | 13000 | 16000 | 14000 | 13000 | 12000 | 12000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <5 | 6 | 22 | 28 | 9 | 24 |
| Vanadium | mg/L | 0.006 | 2 | 2 | 1 | 4 | 1 | 1 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <5 | <5 | 7 | <5 | 8 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9130 | 7280 | 7420 | 5390 | 8090 | 10400 |
| Conductivity (Field) | uS/cm | -- | 651 | 307 | 788 | 750 | 738 | 777 |
| pH (Field) | - | 8.5 | 8.48 | 7.46 | 7.40 | 7.11 | 6.51 | 7.10 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 26.2 | 9.0 | 23.6 | 25.0 | 4.4 | 13.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 24-Aug-2011 | 07-Nov-2011 | 05-Jun-2012 | 29-Aug-2012 | 19-Nov-2012 | 22-Apr-2013 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 170000 | 214000 | 220000 | 200000 | 250000 | 260000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | 6.8 | 53 | 1 | 27.45 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 91000 | 100000 | 87000 | 110000 | 110000 | 77000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 16900 | 17000 | 23000 | 25000 | 21000 | 19000 |
| Hardness, Calcium Carbonate | mg/L | -- | 190000 | 230000 | 200000 | 220000 | 290000 | 270000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | 100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | <10 | <10 | <10 | <10 | 12 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1800 | 1700 | 1800 | 5000 | 3000 | 3900 |
| Nitrogen, Nitrate-Nitrite | -- | -- | <100 | <100 | <100 | <100 | <100 | 120 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 56 | 55 | 40 | 320 | 67 | 150 |
| Sulphate | mg/L | 128-429 (BC FW) | 35000 | 43000 | 34000 | 31000 | 43000 | 37000 |
| Total Dissolved Solids | mg/L | -- | 448000 | 820000 | 452000 | 512000 | 508000 | 484000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 15 | 8 | 14 | 96 | 15 | 10 |
| Barium | mg/L | -- | 21 | 33 | 28 | 6.2 | 16 | 66 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | <0.50 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 740 | 890 | 770 | 990 | 910 | 750 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.10 | <0.10 | <0.10 | <0.10 |
| Calcium | mg/L | -- | 28000 | 43000 | 41000 | 32000 | 52000 | 67000 |
| Chromium | mg/L | 14 | <5 | <5 | <5.0 | <5.0 | <5.0 | <5.0 |
| Cobalt | mg/L | 0.0009 | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | 1.4 |
| Copper | mg/L | 0.005 | <1 | 2 | 1.7 | <1.0 | 1.4 | 3.9 |
| Iron | mg/L | 0.3 | 200 | 200 | 240 | <100 | 320 | 2300 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | <0.5 | <0.50 | <0.50 | <0.50 | 0.58 |
| Magnesium | mg/L | -- | 30000 | 32000 | 32000 | 37000 | 40000 | 27000 |
| Manganese | mg/L | -- | 97 | 54 | 50 | 66 | 83 | 690 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <0.5 | 0.5 | <0.50 | <0.50 | 0.57 | <0.50 |
| Nickel | mg/L | 0.025 | 4 | 5 | 5.5 | 5.4 | 5.5 | 6.8 |
| Potassium | mg/L | -- | 8300 | 8700 | 7700 | 9400 | 10000 | 9600 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 560 | 580 | 460 | 860 | 880 | 5500 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.10 | <0.10 | <0.10 | <0.10 |
| Sodium | mg/L | -- | 71000 | 77000 | 71000 | 88000 | 93000 | 59000 |
| Strontium | mg/L | -- | 220 | 330 | 340 | 300 | 390 | 390 |
| Sulfur | mg/L | -- | 11000 | 15000 | 12000 | 11000 | 15000 | 13000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.050 | <0.050 | <0.050 | <0.050 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <5 | 6 | <5.0 | <5.0 | 8.3 | 70 |
| Vanadium | mg/L | 0.006 | 2.2 | 0.9 | 1.6 | 2.2 | 1.9 | 4.1 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <5 | <5.0 | <5.0 | <5.0 | 14 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | 4 | <1.0 | 2.5 | <1.0 | 2.7 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8300 | 10300 | 8320 | 11780 | 1970 | 2010 |
| Conductivity (Field) | uS/cm | -- | 591 | 755 | 705 | 753 | 831 | 552 |
| pH (Field) | - | 8.5 | 8.89 | 7.87 | 8.30 | 9.35 | 8.02 | 7.82 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 25.0 | 9.8 | 23.3 | 24.7 | 2.2 | 9.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|--------------------|-------------|-------------|-------------|-------------|
| | | | 06-Sep-2013 | 29-Nov-2013 | 09-May-2014 | 27-Aug-2014 | 24-Nov-2014 | 14-May-2015 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 190000 | 270000 | 350000 | 250000 | 180000 | 300000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <10.98 | 28.49 | 122.18 | 29.66 | 2.8 | 54 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 110000 | 120000 | 99000 | 120000 | 49000 | 100000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 22000 | 21000 | 24000 | 25000 | 12000 | 21000 |
| Hardness, Calcium Carbonate | mg/L | -- | 190000 | 260000 | 340000 | 220000 | 170000 | 310000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | 200 | <100 | <100 | <100 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | 23 | <10 | <10 | <10 | 31 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 2400 | 3600 | 5800 | 3700 | 1700 | 3000 |
| Nitrogen, Nitrate-Nitrite | -- | -- | <100 | 230 | <100 | <100 | <100 | <100 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 69 | 96 | 110 | 220 | 71 | 110 |
| Sulphate | mg/L | 128-429 (BC FW) | 33000 | 35000 | 37000 | 29000 | 27000 | 27000 |
| Total Dissolved Solids | mg/L | -- | 442000 | 516000 | 550000 | 506000 | 282000 | 488000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 14 | 5.2 | 13 | 12 | <5.0 | 9 |
| Barium | mg/L | -- | 29 | 49 | 66 | 28 | 30 | 56 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 980 | 960 | 820 | 970 | 490 | 830 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| Calcium | mg/L | -- | 31000 | 59000 | 89000 | 40000 | 36000 | 64000 |
| Chromium | mg/L | 14 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Cobalt | mg/L | 0.0009 | <0.50 | <0.50 | 0.75 | <0.50 | <0.50 | <0.50 |
| Copper | mg/L | 0.005 | <1.0 | 5.5 | <1.0 | 1.1 | 1.9 | <1.0 |
| Iron | mg/L | 0.3 | 210 | 380 | 720 | 450 | 620 | 170 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Magnesium | mg/L | -- | 34000 | 39000 | 33000 | 31000 | 20000 | 32000 |
| Manganese | mg/L | -- | 190 | 73 | 480 | 200 | 180 | 150 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Nickel | mg/L | 0.025 | 5.4 | 6.8 | 4.9 | 5.4 | 2.8 | 4.9 |
| Potassium | mg/L | -- | 13000 | 16000 | 16000 | 15000 | 8200 | 13000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 600 | 680 | 2500 | 1700 | 1700 | 310 |
| Silver | mg/L | 0.0001 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 |
| Sodium | mg/L | -- | 87000 | 96000 | 80000 | 92000 | 44000 | 77000 |
| Strontium | mg/L | -- | 300 | 430 | 510 | 370 | 220 | 430 |
| Sulfur | mg/L | -- | 12000 | 13000 | 12000 | 11000 | 8800 | 8800 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 9.4 | 17 | <5.0 | 12 | 18 | <5.0 |
| Vanadium | mg/L | 0.006 | 1.8 | 2.0 | 1.4 | 2.1 | 1.0 | 1.6 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <5.0 | 8.9 | <5.0 | 6.4 | 6.5 | <5.0 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1.0 | 5.8 | 2.7 | 3.8 | 4.4 | <1.0 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 6810 | -- ⁽²³⁾ | 3570 | 9630 | 7710 | 3890 |
| Conductivity (Field) | uS/cm | -- | 683 | 908 | 898 | 881 | 543 | 904 |
| pH (Field) | - | 8.5 | 8.82 | 8.28 | 8.12 | 8.75 | 7.69 | 8.10 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 21.0 | 6.4 | 16.3 | 25.4 | 5.3 | 16.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|--------------|--------------|--------------|
| | | | 17-Jun-2015 | 18-Aug-2015 | 20-Nov-2015 | 15-Jun-2016 | 23-Aug-2016 | 13-Oct-2016 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | -- | 220000 | 270000 | 277 | 214 | 241 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 2.43 | 8.97 | 1.3 | 0.17 | 0.07 | 0.07 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | -- | 120000 | 110000 | 100 | 114 | 117 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | 881 | 834 | 851 |
| Dissolved Organic Carbon | mg/L | -- | -- | 25000 | 23000 | 18.4 | 13.4 | 20.4 |
| Hardness, Calcium Carbonate | mg/L | -- | -- | 190000 | 260000 | 225 | 210 | 196 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | <100 | 120 | 0.1 | < 0.1 | < 0.1 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | <10 | 39 | < 0.1 | < 0.1 | < 0.1 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 2500 | 1600 | 4.43 | 3.3 | 4.6 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | <100 | 160 | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 110 | 510 | 98 | 0.12 | 0.1 | 0.2 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 25000 | 29000 | 29 | 33 | 34 |
| Total Dissolved Solids | mg/L | -- | -- | 482000 | 528000 | -- | -- | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | 0.13 | 0.1 | 0.1 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 17 | 11 | 0.03 | 0.02 | 0.03 |
| Barium | mg/L | -- | -- | 33 | 45 | 0.053 | 0.064 | 0.035 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <0.50 | <0.50 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 850 | 1100 | 990 | 0.919 | 1.07 | 0.971 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.10 | <0.10 | 0.00007 | 0.0001 | 0.00002 |
| Calcium | mg/L | -- | -- | 30000 | 46000 | 45.9 | 25.9 | 25.7 |
| Chromium | mg/L | 14 | -- | <5.0 | <5.0 | < 0.002 | 0.002 | < 0.002 |
| Cobalt | mg/L | 0.0009 | -- | 0.68 | <0.50 | 0.0007 | 0.0005 | 0.0003 |
| Copper | mg/L | 0.005 | -- | 1.7 | 1.3 | 0.0044 | 0.0044 | 0.0011 |
| Iron | mg/L | 0.3 | -- | 1600 | 360 | 0.356 | 0.221 | 0.249 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | -- | <0.50 | <0.50 | 0.001 | 0.00083 | 0.00025 |
| Magnesium | mg/L | -- | -- | 31000 | 32000 | 34.5 | 35.3 | 32 |
| Manganese | mg/L | -- | -- | 230 | 68 | 0.155 | 0.1 | 0.106 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁵⁾ | -- | <0.1 | <0.1 | < 0.00002 | 0.00003 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | -- | <0.50 | <0.50 | 0.0004 | 0.0005 | 0.0006 |
| Nickel | mg/L | 0.025 | -- | 6.5 | 5.5 | 0.0077 | 0.0095 | 0.0046 |
| Potassium | mg/L | -- | -- | 13000 | 13000 | 13.5 | 13.7 | 13.4 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 2400 | 830 | 0.8 | 1.27 | 0.21 |
| Silver | mg/L | 0.0001 | -- | 0.21 | <0.10 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium | mg/L | -- | -- | 89000 | 86000 | 86.3 | 95.8 | 89.6 |
| Strontium | mg/L | -- | -- | 280 | 340 | 0.469 | 0.331 | 0.316 |
| Sulfur | mg/L | -- | -- | 7700 | 10000 | 10.2 | 12.4 | 10.6 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.050 | <0.050 | < 0.00005 | 0.00006 | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 37 | 10 | 0.007 | < 0.005 | < 0.005 |
| Vanadium | mg/L | 0.006 | -- | 4.3 | 1.4 | 0.003 | 0.0048 | 0.0035 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | 5.6 | <5.0 | 0.006 | 0.036 | < 0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1.0 | <1.0 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 3640 | 3760 | -- | 18.74 | 13.99 | 10.32 |
| Conductivity (Field) | uS/cm | -- | 833 | 895 | 489 | 881 | 801 | 820 |
| pH (Field) | - | 8.5 | 8.04 | 8.14 | 7.64 | 8.3 | 9.5 | 8.8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 21.1 | 23.1 | 4.5 | 28.1 | 22.7 | 13.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 01-May-2017 | 20-Sep-2017 | 06-Nov-2017 | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 342 | 208 | 224 | 300 | 176 | 254 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.43 | < 0.01 | 0.04 | 0.09 | 0.03 | 0.0013 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | 3.22 | 0.05 | 0.09 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | <3 | 5 | 7 |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | 90 | 95 | 71 |
| Chloride | mg/L | 120-640 (CWQG FW) | 76.6 | 71.6 | 67.8 | 82.9 | 96.2 | 96.4 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | 979 | 699 | 690 | 860 | 686 | 797 |
| Dissolved Organic Carbon | mg/L | -- | 18.6 | 18.8 | 17 | 17 | 20.5 | 17.3 |
| Hardness, Calcium Carbonate | mg/L | -- | 357 | 217 | 226 | 292 | 168 | 219 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 0.36 | < 0.1 | 0.27 | 0.35 | < 0.05 | < 0.05 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.1 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 6.98 | 2.1 | 2.4 | 5.1 | 2.4 | 1.9 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.09 | 0.07 | 0.05 | 0.07 | 0.07 | 0.05 |
| Sulphate | mg/L | 128-429 (BC FW) | 43 | 23 | 23 | 29 | 24 | 27 |
| Total Dissolved Solids | mg/L | -- | 541 | 385 | 370 | 469 | 362 | 434 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | 0.09 | 0.07 | 0.06 | 0.06 | 0.05 | 0.06 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.04 | 0.03 | 0.05 | 0.03 | 0.047 |
| Barium | mg/L | -- | 0.064 | 0.041 | 0.037 | 0.024 | 0.009 | 0.049 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.927 | 0.89 | 0.757 | 0.75 | 0.852 | 0.807 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | < 0.000014 | < 0.000014 | 0.000165 | <0.000015 | <0.00014 | 0.000025 |
| Calcium | mg/L | -- | 85 | 36.7 | 41.9 | 70.4 | 17.4 | 39.2 |
| Chromium | mg/L | 14 | 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.002 | < 0.001 |
| Cobalt | mg/L | 0.0009 | 0.0009 | 0.0003 | 0.0003 | 0.0006 | < 0.001 | 0.0004 |
| Copper | mg/L | 0.005 | 0.0018 | 0.0009 | 0.0042 | 0.0012 | 0.0017 | 0.0087 |
| Iron | mg/L | 0.3 | 0.227 | 0.151 | 0.117 | 0.087 | 0.074 | 0.159 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00004 | 0.00005 | 0.00037 | | 0.00044 | 0.00037 |
| Magnesium | mg/L | -- | 35.3 | 30 | 26.3 | 28.2 | 28.6 | 29.4 |
| Manganese | mg/L | -- | 0.248 | 0.112 | 0.078 | 0.164 | 0.109 | 0.056 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0004 | 0.0002 | 0.0003 | <0.0001 | <0.001 | 0.0004 |
| Nickel | mg/L | 0.025 | 0.0078 | 0.0045 | 0.0064 | 0.0058 | 0.0054 | 0.0048 |
| Potassium | mg/L | -- | 12.4 | 10.8 | 11 | 11.3 | 10.6 | 11.7 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 1.66 | 0.31 | 0.7 | 1.36 | 1.27 | 0.35 |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.0002 | < 0.0001 |
| Sodium | mg/L | -- | 76.7 | 72.3 | 64.2 | 63 | 78.6 | 76.9 |
| Strontium | mg/L | -- | 0.547 | 0.365 | 0.343 | 0.433 | 0.216 | 0.348 |
| Sulfur | mg/L | -- | 18.3 | 8.4 | 8.7 | 9.3 | 8.1 | 8.7 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | 0.0002 | < 0.005 | 0.005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Vanadium | mg/L | 0.006 | 0.0011 | 0.0016 | 0.0004 | 0.0011 | 0.0027 | 0.0015 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.107 | 0.042 | 0.009 | 0.005 | 0.019 | 0.011 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | < 0.001 | < 0.001 | < 0.001 | 0.004 | 0.003 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9.77 | 10.92 | 6.48 | 8.85 | 9.68 | 12.7 |
| Conductivity (Field) | uS/cm | -- | 933 | 615 | 662 | 730 | 510 | 572 |
| pH (Field) | - | 8.5 | 8.1 | 8.7 | 8.2 | 8.1 | 9.2 | 8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 11.8 | 26.6 | 9.5 | 10.6 | 29.1 | 4.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|--------------|-------------|-------------|-------------|------------|
| | | | 24-Apr-2019 | 24-Sept-2019 | 31-Oct-2019 | 25-May-2020 | 29-Jul-2020 | 3-Nov-2020 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 206 | 188 | 213 | 322 | 182 | 259 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.07 | 0.03 | 0.0004 | 0.15 | 0.03 | 0.0172 |
| Ammonia Nitrogen | mg/L | -- | 2.76 | 0.08 | 0.1 | 3.41 | 0.08 | 0.53 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | < 3 | < 3 | 3 | | < 3 | 4 |
| Chemical Oxygen Demand | mg/L | -- | 49 | 63 | 68 | | 71 | 50 |
| Chloride | mg/L | 120-640 (CWQG FW) | 50.1 | 66.4 | 88.5 | 75.8 | 101 | 97.9 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 22.7 | 19.5 | 17.8 | 18.9 | 19.5 | 12.6 |
| Hardness, Calcium Carbonate | mg/L | -- | 209 | 162 | 220 | 316 | 187 | 255 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 0.37 | < 0.05 | < 0.05 | -- | < 0.05 | 0.06 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | -- | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 4.3 | 2 | 2.4 | -- | 2 | 2.7 |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.1 | 0.070 | 0.080 | 0.04 | 0.03 | 0.07 |
| Sulphate | mg/L | 128-429 (BC FW) | 24 | 21 | 30 | | 40 | 36 |
| Total Dissolved Solids | mg/L | -- | 323 | 329 | 404 | 506 | 402 | 464 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | 0.16 | 0.05 | 0.04 | -- | 0.06 | 0.05 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.04 | 0.02 | -- | 0.02 | 0.03 |
| Barium | mg/L | -- | 0.049 | 0.02 | 0.032 | -- | 0.028 | 0.039 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | < 0.0001 | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.456 | 0.82 | 0.852 | 0.799 | 0.907 | 0.83 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.000029 | 0.000021 | < 0.000015 | -- | < 0.000015 | < 0.000015 |
| Calcium | mg/L | -- | 54.7 | 20 | 36.4 | -- | 25.2 | 46.2 |
| Chromium | mg/L | 14 | 0.002 | 0.001 | < 0.001 | -- | < 0.001 | < 0.001 |
| Cobalt | mg/L | 0.0009 | 0.0006 | 0.0003 | 0.0003 | -- | 0.0002 | 0.0004 |
| Copper | mg/L | 0.005 | 0.002 | 0.003 | 0.0016 | -- | 0.0002 | 0.0005 |
| Iron | mg/L | 0.3 | 0.306 | 0.088 | 0.121 | 0.288 | 0.106 | 0.139 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00015 | 0.00055 | 0.00011 | -- | 0.00002 | 0.00014 |
| Magnesium | mg/L | -- | 19.4 | 27.3 | 30.9 | -- | 32.6 | 30 |
| Manganese | mg/L | -- | 0.155 | 0.089 | 0.11 | 0.209 | 0.116 | 0.153 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | 0.00003 | 0.00002 | -- | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0002 | 0.0004 | 0.0003 | -- | 0.0001 | 0.0002 |
| Nickel | mg/L | 0.025 | 0.0032 | 0.0048 | 0.0035 | -- | 0.0034 | 0.0039 |
| Potassium | mg/L | -- | 8.4 | 10.7 | 12.3 | -- | 13.2 | 13.3 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 2.36 | 1.03 | 0.98 | -- | 0.38 | 0.78 |
| Silver | mg/L | 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | -- | < 0.0001 | < 0.0001 |
| Sodium | mg/L | -- | 42.1 | 70.5 | 77.2 | 73.5 | 81.2 | 84.9 |
| Strontium | mg/L | -- | 0.307 | 0.215 | 0.296 | -- | 0.214 | 0.325 |
| Sulfur | mg/L | -- | 8 | 8.6 | 9.8 | -- | 10.6 | 10.6 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | -- | < 0.00005 | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.008 | < 0.005 | < 0.005 | -- | < 0.005 | < 0.005 |
| Vanadium | mg/L | 0.006 | 0.0007 | 0.0028 | 0.0013 | -- | 0.0009 | 0.001 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | 0.006 | 0.011 | -- | 0.012 | < 0.005 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | 0.002 | < 0.002 | < 0.001 | -- | < 0.002 | < 0.002 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9.29 | 11.0 | 11.2 | 9.8 | 4.2 | 17.2 |
| Conductivity (Field) | uS/cm | -- | 676 | 686 | 722 | 915 | 1021 | 816 |
| pH (Field) | - | 8.5 | 8.1 | 9.06 | 7.2 | 7.9 | 8.7 | 8.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 8.7 | 20 | 11.5 | 22 | 28.8 | 3.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|--------------|-------------|
| | | | 25-May-2021 | 16-Aug-2021 | 11-Nov-2021 | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 277 | 177 | 264 | -- | 207 | 257 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.10 | 0.03 | 0.0005 | -- | 0.0049 | 0.0003 |
| Ammonia Nitrogen | mg/L | -- | 0.72 | 0.05 | 0.25 | -- | 0.05 | 0.04 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 97.1 | 104 | 109 | -- | 110 | 107 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | 800 | 894 |
| Dissolved Organic Carbon | mg/L | -- | 13.1 | 15.8 | 18.4 | -- | 17.3 | 10.1 |
| Hardness, Calcium Carbonate | mg/L | -- | 249 | 218 | 246 | -- | 174 | 244 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.04 | 0.08 | -- | 0.03 | 0.03 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 465 | 411 | 480 | -- | 429 | 483 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.769 | 0.851 | 0.88 | -- | 0.923 | 0.956 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 0.056 | 0.044 | 0.104 | -- | 0.031 | 0.068 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁴⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 0.102 | 0.18 | 0.063 | -- | 0.051 | 0.059 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 76.7 | 84.8 | 92.1 | -- | 101 | 103 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11 | 8.2 | 9.6 | -- | 7.9 | 1.1 |
| Conductivity (Field) | uS/cm | -- | 868 | 870 | 543 | -- | 840 | 880 |
| pH (Field) | - | 8.5 | 8.42 | 9.03 | 7.1 | -- | 8.1 | 7.42 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 23.7 | 27.5 | 6.7 | -- | 27.9 | 14.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS12 | GS12 | GS12 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|--------------|
| | | | 05-May-2023 | 14-Aug-2023 | 29-Sept-2023 |
| | | | GS-12 | GS-12 | GS-12 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 341 | 260 | 276 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.15 | 0.03 | 0.021 |
| Ammonia Nitrogen | mg/L | -- | 2.93 | 0.18 | 0.15 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 102 | 99.6 | 108 |
| Color | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | 836 | -- |
| Dissolved Organic Carbon | mg/L | -- | 16.0 | 13.2 | 2.4 |
| Hardness, Calcium Carbonate | mg/L | -- | 296 | 221 | 227 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.07 | 0.11 | 0.04 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 532 | 441 | 460 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.710 | 0.784 | 0.893 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- |
| Calcium | mg/L | -- | 73.8 | -- | 40.1 |
| Chromium | mg/L | 14 | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- |
| Iron | mg/L | 0.3 | 0.106 | 0.013 | 0.029 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- |
| Magnesium | mg/L | -- | 27.2 | -- | 30.9 |
| Manganese | mg/L | -- | 0.102 | 0.007 | 0.070 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- |
| Sodium | mg/L | -- | 75.2 | 83.5 | 91.6 |
| Strontium | mg/L | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- |
| Field Measurements | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8.3 | 8.7 | -- |
| Conductivity (Field) | uS/cm | -- | 1130 | 720 | 781 |
| pH (Field) | - | 8.5 | 8.19 | 8.50 | 8.52 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 15.7 | 24.1 | 19.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 06-Sep-1992 | 28-Nov-1992 | 04-May-1993 | 29-Aug-1993 | 11-Nov-1993 | 04-Jun-1994 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 66000 | 86000 | 54000 | 73000 | 64000 | 73000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <100 | 10 | <10 | <10 | 60 | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 4000 | 1000 | 4000 | 3000 | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 33000 | 27000 | 16000 | 23000 | 20000 | 13000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 13000 | 16000 | 11000 | 17000 | 17000 | 18000 |
| Color | color unit | -- | color unit | -- | 7 | 11 | 11 | 10 | 7 | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | 5400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 82000 | 95000 | 64000 | 96000 | 91000 | 117000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | 160 | <100 | 120 | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 650 | 390 | 310 | 500 | 500 | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | 650 | 380 | 310 | 500 | 440 | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 30 | 40 | <30 | 30 | <10 | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 19000 | 26000 | 20000 | 17000 | 21000 | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 130000 | 140000 | 120000 | 140000 | 140000 | 130000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | 9200 | 8000 | 4600 | 8100 | 7200 | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | 6000 | 11000 | 16000 | 6000 | 11000 | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | 3.9 | 2.4 | 3 | 2.7 | 3.1 | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 320 | 60 | 130 | <30 | <30 | -- |
| Barium | ug/l | -- | mg/L | -- | 20 | 20 | 20 | 30 | 10 | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | -- | <10 | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 90 | 50 | <10 | 70 | 70 | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | -- |
| Calcium | ug/l | -- | mg/L | -- | 18000 | 25000 | 14000 | 22000 | 20000 | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 30 | <10 | <10 | <10 | <10 | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <10 | -- | <0.4 | <0.4 | <0.4 | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | <5 | <5 | <5 | <5 | <5 | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 260 | 120 | 270 | <10 | 30 | -- |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | -- |
| Magnesium | ug/l | -- | mg/L | -- | 9000 | 8000 | 7000 | 10000 | 10000 | -- |
| Manganese | ug/l | -- | mg/L | -- | 130 | 30 | <10 | <10 | <10 | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <10 | -- | <10 | <10 | <10 | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | -- |
| Potassium | ug/l | -- | mg/L | -- | 2000 | 2000 | 2000 | 2000 | 2000 | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | <1 | <1 | <1 | <1 | <1 | -- |
| Silicon | ug/l | -- | mg/L | -- | 500 | -- | 800 | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Sodium | ug/l | -- | mg/L | -- | 10000 | 11000 | 8000 | 11000 | 11000 | 10000 |
| Strontium | ug/l | -- | mg/L | -- | 110 | 110 | <7 | <7 | 130 | 120 |
| Sulfur | ug/l | -- | mg/L | -- | 6000 | -- | 9000 | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <50 | -- | <5 | <5 | <5 | -- |
| Tin | ug/l | -- | mg/L | -- | <50 | -- | <50 | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | -- | <10 | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | <10 | -- | <7 | <7 | <7 | -- |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | 10 | <10 | <10 | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 1 | <1 | <1 | <1 | 2 | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 10100 | 13600 | 10600 | 8200 | 12300 | 9400 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 210 | 210 | 220 | 190 | 220 | 240 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.6 | 7 | 5.8 | 8.4 | -- | 6.8 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 15 | 2 | 16 | 25 | 4 | 16.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 07-Sep-1994 | GS15 24-Nov-1994 | GS15 28-May-1995 (4) | GS15 11-Sep-1995 (4) | GS15 07-Nov-1995 (4) | GS15 17-Jul-1996 (4) |
|----------------------------------|--------------------------|-----------------|-------------------------|-------------------|---------------------|---------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | --(6) | mg/L | --(6) | 76000 | -- | -- | -- | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 25000 | -- | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 19000 | 19000 | -- | -- | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9000 | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 95000 | -- | -- | -- | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 (7) | mg/L | 0.010-0.030 (7) | -- | -- | -- | -- | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 140000 | -- | -- | -- | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | --(9) | ntu | --(9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | --(10) | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 (10) | mg/L | 0.015-0.075 (10) | -- | -- | -- | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 (11) | mg/L | 0.011-1.1 (11) | -- | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 (12) | mg/L | 0.2 (12) | -- | -- | -- | -- | -- | -- |
| Cadmium | ug/l | 0.2 (13) | mg/L | 0.0002 (13) | -- | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | ug/l | --(14) | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | 120 | -- | -- | -- | -- |
| Lead | ug/l | --(15) | mg/L | --(15) | -- | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | ug/l | 0.2 (16) | mg/L | 0.0002 (16) | -- | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 6000 | -- | -- | -- | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | 110 | -- | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 (17) | mg/L | 0.0003 (17) | -- | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 (13) | mg/L | 0.03 (13) | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 (18) | mg/L | 0.001 (18) | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | --(6) | mg/L | --(6) | 9400 | 12900 | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 240 | 240 | -- | -- | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.4 | 7 | -- | -- | -- | -- |
| Temperature (Field) | deg c | --(6) | deg c | --(6) | 17 | 1 | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| | | | | | 22-Nov-1996 ⁽⁴⁾ | 10-Jun-1997 ⁽⁴⁾ | 09-Sep-1997 ⁽⁴⁾ | 11-Jun-1998 ⁽⁴⁾ | 20-Aug-1998 ⁽⁴⁾ | 25-May-1999 ⁽⁴⁾ |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | -- | -- | -- | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | -- | -- | -- | -- | -- |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | -- | -- | -- | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | -- | -- | -- | -- | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | -- | -- | -- | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|----------------------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 31-Aug-1999 ⁽⁶⁾ | 05-Apr-2002 | 01-Nov-2002 | 12-May-2003 | 26-Aug-2003 | 19-Nov-2003 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 31000 | 107000 | 102000 | 79000 | 69000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | 320 | 30 | 40 | <20 | 30 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | 2000 | <1000 | 5000 | <1000 | 4000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | <5000 | 22000 | 24000 | 22000 | 14000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | 5000 | 48000 | 37000 | 48000 | 30000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | 1700 | 8700 | 7000 | 8200 | 7300 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | 46000 | 127000 | 141000 | 112000 | 84000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | 530 | <100 | 160 | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | 540 | 1130 | 1010 | 820 | 600 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | 30 | 40 | 30 | 10 | 50 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | 20000 | 36000 | 28000 | 20000 | 14000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | 86000 | 280000 | 237000 | 215000 | 173000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 50 | <10 | 20 | 20 | 20 |
| Barium | ug/l | -- | mg/L | -- | -- | 10 | 20 | 20 | <10 | 10 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <2 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | <50 | 90 | 50 | 90 | 70 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | -- | 12000 | 26000 | 35000 | 20000 | 17000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | -- | <1 | <1 | 2 | 2 | <1 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | 0.2 | 0.2 | 0.3 | <0.2 | <0.2 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | <1 | 2 | 2 | <1 | 1 |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | 80 | 170 | 80 | 50 | 140 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | -- | <1 | <1 | <1 | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | -- | 4000 | 15000 | 13000 | 15000 | 10000 |
| Manganese | ug/l | -- | mg/L | -- | -- | 120 | 122 | 123 | 26 | 20 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | <10 | <5 | <5 | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | <10 | <5 | <5 | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | -- | <1000 | 3000 | 3000 | 2000 | 3000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | 700 | 400 | 100 | <100 | 700 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | -- | 4000 | 30000 | 18000 | 22000 | 15000 |
| Strontium | ug/l | -- | mg/L | -- | -- | 61 | 160 | 162 | 119 | 119 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <1 | <1 | <1 | <1 | <1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | <10 | <10 | <10 | <10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | <1 | 2 | 1 | 2 | <1 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | -- | <10 | <5 | <5 | <5 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | 1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | -- | 9400 | 6180 | 9720 | 6950 | 6390 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | 140 | 175 | 300 | 410 | 440 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | 6.8 | 6.7 | 8.1 | 7.9 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | -- | 1 | 4 | 15 | 16 | 0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 26-May-2004 | 28-Aug-2004 | 25-Nov-2004 | 26-May-2005 | 26-Aug-2005 | 15-Nov-2005 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 114000 | 134000 | 135000 | 135000 | 83000 | 103000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 40 | 60 | 100 | 40 | 60 | 80 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 1000 | 1600 | 700 | 3000 | 12000 | <1000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 34000 | 44000 | 25000 | 21000 | 39000 | 18000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 51300 | 68400 | 65600 | 141000 | 26000 | 20000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 9100 | 11200 | 8000 | 9800 | 15200 | 6500 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 153200 | 170600 | 176400 | 254000 | 97000 | 133000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <200 | <200 | <200 | <100 | <100 | 660 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <200 | <200 | <200 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 620 | 800 | 820 | 1010 | 2920 | 600 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 33 | 47 | 21 | 30 | 90 | 40 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 17400 | 15200 | 21200 | 30000 | 18000 | 22000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 236000 | 282000 | 316000 | 504000 | 188000 | 205000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 105 | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 15 | 181 | 56 | <10 | 60 | 20 |
| Barium | ug/l | -- | mg/L | -- | 20 | 26 | 27 | 40 | 10 | 20 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 81 | 91 | 88 | 150 | 110 | 70 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 33900 | 36300 | 42700 | 59000 | 19000 | 32000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | <5 | <5 | 2 | 2 | 1 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.2 | 0.2 | <0.1 | 0.2 | 0.2 | <0.2 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1.6 | 1.6 | 0.5 | 1 | 2 | <1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 240 | 330 | 130 | 170 | 210 | 70 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <0.5 | <0.5 | <0.5 | <1 | <1 | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 16600 | 19400 | 16900 | 26000 | 12000 | 13000 |
| Manganese | ug/l | -- | mg/L | -- | 74 | 206 | 48 | 210 | 140 | 20 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <1 | <1 | <1 | <5 | <5 | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 1 | 2 | 2 | <5 | <5 | <5 |
| Potassium | ug/l | -- | mg/L | -- | 2400 | 3700 | 3500 | 3000 | 3000 | 3000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 260 | 380 | 200 | 600 | 400 | 400 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 23700 | 32600 | 31200 | 53000 | 19000 | 14000 |
| Strontium | ug/l | -- | mg/L | -- | 193 | 210 | 233 | 321 | 129 | 156 |
| Sulfur | ug/l | -- | mg/L | -- | 6700 | 5100 | 7600 | 10000 | 6000 | 7300 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.1 | <0.1 | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 5 | 10 | <5 | <10 | <10 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.7 | 1 | <0.5 | 2 | 5 | 2 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 6 | 13 | 7 | <10 | <10 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 1 | 1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9400 | 7110 | 8890 | 8820 | 10820 | 7900 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 346 | 400 | 495 | 775 | 250 | 500 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.08 | 7.5 | 7.2 | 7.4 | 6.8 | 7.3 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 19.5 | 17 | 1 | 8 | 32.6 | 8.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 06-Sep-2006 | GS15 20-Nov-2006 | GS15 29-May-2007 | GS15 23-Aug-2007 | GS15 25-Nov-2007 | GS15 01-May-2008 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 220000 | 268000 | 302000 | 203000 | 184000 | 277000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | 266 | <20 | <20 | 20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 230 | 2250 | 1780 | 360 | <20 | 2480 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 2000 | 19000 | 4000 | 2000 | -- | 3000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 50000 | 69000 | 50000 | 29000 | -- | 47000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 63000 | 65000 | 68000 | 67000 | 74000 | 63000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 17600 | 24000 | 19600 | 17500 | 17300 | 17700 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 229000 | 260000 | 292000 | 216000 | 195000 | 288000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 170 | <100 | <100 | -- | 150 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | -- | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 2390 | 3350 | 9850 | 2610 | -- | 3010 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 60 | 60 | 70 | 30 | 110 | 40 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 18000 | 21000 | 26000 | 32000 | -- | 41000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 424000 | 491000 | 525000 | 430000 | 425000 | 511000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 20 | <10 | 20 | 20 | -- | 10 |
| Barium | ug/l | -- | mg/L | -- | 40 | 40 | 40 | 30 | -- | 50 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | -- | <1 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 380 | 500 | 590 | 900 | 700 | 700 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 52000 | 63000 | 69000 | 42000 | 37000 | 74000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 3 | 1 | 1 | 3 | -- | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.3 | 0.3 | 0.4 | <0.2 | -- | 1 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1 | <1 | <1 | <1 | -- | 1 |
| Iron | ug/l | 300 | mg/L | 0.3 | 120 | 330 | 310 | 40 | 420 | 590 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | -- | <1 |
| Magnesium | ug/l | -- | mg/L | -- | 24000 | 25000 | 29000 | 27000 | 25000 | 25000 |
| Manganese | ug/l | -- | mg/L | -- | 110 | 400 | 250 | 80 | 150 | 740 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <5 | <5 | -- | <5 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | 5 | <5 | <5 | -- | 7 |
| Potassium | ug/l | -- | mg/L | -- | 9000 | 11000 | 10000 | 10000 | -- | 8000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 700 | 1800 | 1700 | 500 | -- | 3200 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | -- | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 43000 | 45000 | 51000 | 50000 | 46000 | 45000 |
| Strontium | ug/l | -- | mg/L | -- | 304 | 344 | 361 | 299 | -- | 364 |
| Sulfur | ug/l | -- | mg/L | -- | 6000 | 7000 | 8700 | 10700 | -- | 14000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | 0.3 | <0.1 | -- | <0.1 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | <10 | <10 | <10 | -- | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2 | 1 | 2 | 4 | -- | 5 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | <10 | <10 | -- | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | 6 | <1 | <1 | -- | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 10920 | 10320 | 10200 | 6660 | 10600 | 6180 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 510 | 415 | 445 | 725 | 500 | 550 |
| pH (Field) | - | 8.5 | - | 8.5 | 7.2 | 7.2 | 8.6 | 8.1 | 7.8 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 10 | 2 | 21.5 | 20.9 | 0.9 | 11.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 11-Aug-2008 | 04-Nov-2008 | 09-Apr-2009 | 05-Aug-2009 | 03-Nov-2009 | 01-Jun-2010 |
| | | | | | | | C-6 | GS-15 | GS-15 | GS-15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 188000 | 192000 | 223000 | 168000 | 189000 | 215000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 30 | 40 | 1100 | <50 | 190 | <50 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 2000 | 4000 | <2000 | <2000 | <2000 | 4000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 36000 | 45000 | 44000 | 46000 | 50000 | 64000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 64000 | 71000 | 62000 | 79000 | 80000 | 90000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 17700 | 16600 | 15100 | 19400 | 23100 | 22400 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 193000 | 196000 | 250000 | 180000 | 210000 | 230000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 100 | 400 | <100 | 200 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1720 | 1280 | 2500 | 1600 | 1900 | 1800 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | 400 | <100 | 200 | <100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 20 | 40 | 29 | 25 | 28 | 51 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 37000 | 43000 | 41000 | 45000 | 45000 | 38000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 407000 | 431000 | 450000 | 410000 | 460000 | 484000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 10 | 10 | 8 | 17 | 10 | 26 |
| Barium | ug/l | -- | mg/L | -- | 40 | 30 | 40 | 24 | 31 | 38 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <0.5 | <0.5 | <0.5 | <0.5 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 720 | 640 | 550 | 690 | 690 | 770 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | ug/l | -- | mg/L | -- | 36000 | 39000 | 58000 | 28000 | 40000 | 51000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 4 | 2 | <5 | <5 | <5 | <5 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.3 | 0.3 | 0.6 | <0.5 | <0.5 | <0.5 |
| Copper | ug/l | 5 | mg/L | 0.005 | 1 | <1 | 1 | <1 | <1 | 2 |
| Iron | ug/l | 300 | mg/L | 0.3 | 90 | 90 | 400 | <100 | 200 | 300 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <1 | <1 | <0.5 | <0.5 | <0.5 | <0.5 |
| Magnesium | ug/l | -- | mg/L | -- | 25000 | 24000 | 23000 | 26000 | 29000 | 34000 |
| Manganese | ug/l | -- | mg/L | -- | 100 | 30 | 340 | 48 | 32 | 55 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <5 | <5 | <1 | <1 | <1 | <1 |
| Nickel | ug/l | 25 | mg/L | 0.025 | <5 | <5 | 4 | 5 | 4 | 6 |
| Potassium | ug/l | -- | mg/L | -- | 7000 | 7000 | 6600 | 7200 | 7600 | 7400 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 500 | 500 | 2000 | 400 | 620 | 560 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | ug/l | -- | mg/L | -- | 45000 | 49000 | 43000 | 57000 | 65000 | 70000 |
| Strontium | ug/l | -- | mg/L | -- | 291 | 257 | 290 | 250 | 260 | 340 |
| Sulfur | ug/l | -- | mg/L | -- | 12000 | 14000 | 14000 | 12000 | 15000 | 13000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.05 | <0.05 | <0.05 | <0.05 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <10 | <10 | 7 | <5 | 7 | 8 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 4 | 2 | 2 | 1 | 1 | 1 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | <10 | <10 | <5 | <5 | <5 | 5 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 5320 | 8360 | 9600 | 9320 | 9690 | 10480 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 600 | 525 | 550 | 644 | 656 | 786 |
| pH (Field) | - | 8.5 | - | 8.5 | 9.2 | 8.7 | 7.9 | 8.75 | 8.14 | 8.40 |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | deg c | -- ⁽⁹⁾ | 23.7 | 8.8 | 7.7 | 26.6 | 9.0 | 25.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 13-Aug-2010 | GS15 12-Nov-2010 | GS15 28-Apr-2011 | GS15 24-Aug-2011 | GS15 07-Nov-2011 | GS15 05-Jun-2012 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | | | | | L-7 | C-3 | A-3 | C-6 | L-7 | GS-15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 175000 | 228000 | 273000 | 158000 | 204000 | 220000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | <20 | <20 | <20 | 30 | <20 | 32 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | <50 | 50 | 1100 | <50 | 100 | 120 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 5000 | 4000 | <2000 | 3000 | 4000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 70000 | 60000 | 76000 | 55000 | 66000 | 61000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 99000 | 94000 | 80000 | 86000 | 96000 | 86000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 18400 | 18600 | 18400 | 16700 | 17000 | 21000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 180000 | 260000 | 290000 | 170000 | 230000 | 230000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | 200 | <100 | <100 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | 10 | <10 | <10 | 23 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1900 | 2300 | 3500 | 1600 | 1700 | 2300 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | <100 | <100 | 200 | <100 | <100 | 110 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 48 | 62 | 160 | 39 | 72 | 59 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 32000 | 35000 | 36000 | 32000 | 42000 | 36000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 434000 | 496000 | 508000 | 348000 | 398000 | 432000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 19 | 18 | 12 | 18 | 13 | 19 |
| Barium | ug/l | -- | mg/L | -- | 26 | 39 | 55 | 21 | 36 | 32 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 770 | 790 | 690 | 750 | 860 | 810 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 31000 | 50000 | 74000 | 23000 | 41000 | 47000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5 | <5 | <5 | <5 | <5 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.5 | <0.5 | 0.9 | <0.5 | <0.5 | 0.53 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1 | 1 | 2 | <1 | 1 | 2.3 |
| Iron | ug/l | 300 | mg/L | 0.3 | 200 | 300 | 1000 | <100 | 200 | 330 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <0.5 | <0.5 | 0.7 | <0.5 | <0.5 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 33000 | 34000 | 29000 | 30000 | 31000 | 34000 |
| Manganese | ug/l | -- | mg/L | -- | 160 | 37 | 380 | 66 | 38 | 63 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 2 | <1 | <1 | <0.5 | <0.5 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 5 | 6 | 5 | 4 | 5 | 6.1 |
| Potassium | ug/l | -- | mg/L | -- | 7900 | 8400 | 9000 | 7900 | 8600 | 8500 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 430 | 670 | 2000 | 380 | 600 | 790 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 74000 | 76000 | 57000 | 67000 | 75000 | 73000 |
| Strontium | ug/l | -- | mg/L | -- | 240 | 310 | 390 | 200 | 320 | 370 |
| Sulfur | ug/l | -- | mg/L | -- | 11000 | 13000 | 13000 | 10000 | 15000 | 13000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 6 | 14 | 36 | <5 | 10 | 8.8 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2 | 2 | 2 | 2.2 | 1.2 | 2.4 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5 | <5 | 8 | <5 | <5 | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | <1 | <1 | <1 | <1 | 4 | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 7550 | 7680 | 12290 | 13190 | 10970 | 11250 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 625 | 746 | 780 | 564 | 718 | 691 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.21 | 7.80 | 7.63 | 9.30 | 8.44 | 8.81 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 26.0 | 8.0 | 14.5 | 26.1 | 10.5 | 25.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|---------------|-------------------------|--------------|-----------------------------|-------------|-------------|-------------|-------------|--------------------|-------------|
| | (< June 2016) | PWQO | (June 2016+) | PWQO | 29-Aug-2012 | 19-Nov-2012 | 22-Apr-2013 | 06-Sep-2013 | 29-Nov-2013 | 09-May-2014 |
| | | | | | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 170000 | 240000 | 280000 | 170000 | 280000 | 360000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 36 | 1.3 | 28.31 | <0.18 | 55.03 | 113.59 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 51 | 98 | 2900 | <50 | 1100 | 3200 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 3000 | 4000 | 6000 | 4000 | <2000 | 8000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 61000 | 66000 | 72000 | 68000 | 76000 | 82000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 100000 | 110000 | 85000 | 100000 | 120000 | 100000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 23000 | 20000 | 21000 | 22000 | 21000 | 25000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 190000 | 270000 | 310000 | 170000 | 270000 | 330000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | <100 | 160 | <100 | 210 | <100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | <10 | <10 | 30 | <10 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 1900 | 2000 | 4600 | 2500 | 3400 | 6900 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | <100 | <100 | 160 | <100 | 240 | <100 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 44 | 73 | 59 | 43 | 72 | 150 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 34000 | 39000 | 40000 | 32000 | 36000 | 38000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 382000 | 528000 | 514000 | 436000 | 522000 | 570000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 23 | 15 | 8.7 | 14 | 6.6 | 15 |
| Barium | ug/l | -- | mg/L | -- | 14 | 12 | 58 | 17 | 48 | 73 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 890 | 940 | 720 | 900 | 950 | 850 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <5 |
| Calcium | ug/l | -- | mg/L | -- | 23000 | 49000 | 73000 | 23000 | 59000 | 90000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 | <10 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | <0.50 | 0.64 | <0.50 | <0.50 | <20 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1.0 | 2.4 | 1.7 | <1.0 | 3.1 | <20 |
| Iron | ug/l | 300 | mg/L | 0.3 | <100 | 180 | 780 | <100 | 350 | 690 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <50 |
| Magnesium | ug/l | -- | mg/L | -- | 33000 | 39000 | 29000 | 31000 | 39000 | 32000 |
| Manganese | ug/l | -- | mg/L | -- | 51 | 69 | 640 | 110 | 44 | 760 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <20 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 4.7 | 5.1 | 5.1 | 4.9 | 6.8 | <50 |
| Potassium | ug/l | -- | mg/L | -- | 8100 | 10000 | 10000 | 11000 | 17000 | 16000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 260 | 670 | 2600 | 330 | 580 | 2400 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <10 |
| Sodium | ug/l | -- | mg/L | -- | 79000 | 92000 | 60000 | 82000 | 97000 | 77000 |
| Strontium | ug/l | -- | mg/L | -- | 230 | 370 | 420 | 240 | 420 | 500 |
| Sulfur | ug/l | -- | mg/L | -- | 11000 | 14000 | 14000 | 11000 | 12000 | 12000 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <5.0 | 5.8 | 6.2 | <5.0 | 20 | <10 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 2.7 | 1.8 | 1.3 | 1.3 | 2.1 | <10 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 6.0 | <5.0 | 6.7 | <5.0 | <5.0 | <10 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 1.1 | <1.0 | 3.8 | <1.0 | 2.7 | 2.9 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9020 | 11080 | 4240 | 15970 | -- ⁽²³⁾ | 3680 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 727 | 829 | 804 | 732 | 927 | 891 |
| pH (Field) | - | 8.5 | - | 8.5 | 9.65 | 8.04 | 7.79 | 6.82 | 8.78 | 8.11 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 24.6 | 5.0 | 8.1 | 24.8 | 0.7 | 15.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | | | 27-Aug-2014 | 24-Nov-2014 | 14-May-2015 | 17-Jun-2015 | 18-Aug-2015 | 20-Nov-2015 |
| | | | | | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 | 15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 200000 | 150000 | 300000 | -- | 180000 | 250000 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 38.45 | 18.28 | 55.95 | <1.98 | <2.74 | 1.45 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 98 | 460 | 1500 | <50 | <50 | 230 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 14000 | <2000 | 2000 | -- | 9000 | <2000 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 82000 | 36000 | 62000 | -- | 99000 | 71000 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 100000 | 59000 | 100000 | -- | 100000 | 100000 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 22000 | 12000 | 21000 | -- | 22000 | 23000 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 190000 | 140000 | 300000 | -- | 160000 | 250000 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | <100 | 140 | <100 | -- | <100 | 100 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | <10 | <10 | 37 | -- | <10 | 18 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 3400 | 1600 | 4100 | -- | 1900 | 1500 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | <100 | 140 | <100 | -- | <100 | 120 |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 99 | 31 | 97 | 180 | 190 | 90 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 31000 | 17000 | 27000 | -- | 23000 | 27000 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 426000 | 308000 | 510000 | -- | 402000 | 518000 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 19 | <5.0 | 8 | -- | 16 | 12 |
| Barium | ug/l | -- | mg/L | -- | 22 | 26 | 56 | -- | 25 | 43 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | <0.50 | <0.50 | -- | <0.50 | <0.50 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 880 | 540 | 840 | 790 | 950 | 950 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | <0.10 | <0.10 | -- | <0.10 | <0.10 |
| Calcium | ug/l | -- | mg/L | -- | 31000 | 29000 | 65000 | -- | 23000 | 43000 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | <5.0 | <5.0 | <5.0 | -- | <5.0 | <5.0 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | <0.50 | <0.50 | 0.54 | -- | 0.52 | <0.50 |
| Copper | ug/l | 5 | mg/L | 0.005 | <1.0 | <1.0 | <1.0 | -- | 1.2 | <1.0 |
| Iron | ug/l | 300 | mg/L | 0.3 | 130 | 130 | 190 | -- | 540 | 160 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | <0.50 | <0.50 | <0.50 | -- | <0.50 | <0.50 |
| Magnesium | ug/l | -- | mg/L | -- | 29000 | 17000 | 33000 | -- | 30000 | 32000 |
| Manganese | ug/l | -- | mg/L | -- | 130 | 17 | 190 | -- | 190 | 51 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.50 | <0.50 | <0.50 | -- | <0.50 | <0.50 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 4.5 | 2.3 | 4.8 | -- | 5.7 | 5.5 |
| Potassium | ug/l | -- | mg/L | -- | 15000 | 9000 | 13000 | -- | 11000 | 13000 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 1200 | 690 | 290 | -- | 1800 | 610 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | <0.10 | <0.10 | <0.10 | -- | 0.21 | <0.10 |
| Sodium | ug/l | -- | mg/L | -- | 81000 | 48000 | 79000 | -- | 82000 | 83000 |
| Strontium | ug/l | -- | mg/L | -- | 320 | 210 | 430 | -- | 240 | 340 |
| Sulfur | ug/l | -- | mg/L | -- | 10000 | 5800 | 8500 | -- | 7100 | 7900 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | <0.050 | <0.050 | -- | <0.050 | <0.050 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | <5.0 | 6.6 | <5.0 | -- | 29 | 8.4 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 1.6 | 0.74 | 1.6 | -- | 2.8 | 1.2 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | <5.0 | <5.0 | <5.0 | -- | <5.0 | <5.0 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | 2.3 | 4.0 | <1.0 | -- | <1.0 | <1.0 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8660 | 10490 | 3810 | 3670 | 3960 | 9630 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 745 | 479 | 905 | 1084 | 928 | 495 |
| pH (Field) | - | 8.5 | - | 8.5 | 9.05 | 8.50 | 8.09 | 8.01 | 8.10 | 7.71 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 25.2 | 5.6 | 16.9 | 20.2 | 22.1 | 4.9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|---------------|--------------|--------------|--------------|--------------|--------------|
| | | | | | 15-Jun-2016 | 23-Aug-2016 | 13-Oct-2016 | 01-May-2017 | 20-Sep-2017 | 06-Nov-2017 |
| | | | | | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 302 | 213 | 236 | 339 | 193 | 223 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.246 | 0.079 | 0.155 | 0.230 | 0.012 | 0.023 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 1.53 | 0.11 | 0.77 | 4.49 | 0.03 | 0.45 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 12 | 5 | 8 | 5 | 4 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 103 | 106 | 124 | 72 | 61 | 69 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 99.8 | 111 | 117 | 76 | 70.6 | 66.9 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 895 | 785 | 846 | 970 | 668 | 709 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 18.5 | 19.5 | 19.9 | 18.1 | 18.4 | 16.7 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 237 | 188 | 199 | 352 | 207 | 226 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.1 | < 0.1 | < 0.1 | 0.33 | < 0.1 | 0.31 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.1 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 4.56 | 2.9 | 4.84 | 6.82 | 2.6 | 2.5 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.11 | 0.09 | 0.24 | 0.08 | 0.06 | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 29 | 29 | 34 | 44 | 23 | 23 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | -- | 536 | 368 | 378 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.16 | 0.07 | 0.13 | 0.09 | 0.1 | 0.09 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.03 | 0.03 | 0.04 | 0.07 | 0.04 |
| Barium | ug/l | -- | mg/L | -- | 0.052 | 0.044 | 0.036 | 0.064 | 0.037 | 0.04 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.882 | 0.956 | 0.975 | 0.916 | 0.85 | 0.793 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.00011 | 0.00006 | 0.00003 | 0.000099 | < 0.000014 | 0.000038 |
| Calcium | ug/l | -- | mg/L | -- | 49.3 | 22.4 | 26.1 | 83 | 32.7 | 45.3 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | < 0.002 | < 0.002 | < 0.002 | 0.002 | < 0.001 | 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0007 | 0.0004 | 0.0004 | 0.0009 | 0.0003 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0051 | 0.0041 | 0.0012 | 0.0044 | 0.0009 | 0.0039 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.344 | 0.13 | 0.211 | 0.209 | 0.132 | 0.128 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | 0.0014 | 0.00064 | 0.00034 | 0.00038 | 0.00004 | 0.00038 |
| Magnesium | ug/l | -- | mg/L | -- | 33.4 | 32.1 | 32.4 | 35.1 | 29.1 | 28.1 |
| Manganese | ug/l | -- | mg/L | -- | 0.158 | 0.102 | 0.126 | 0.238 | 0.077 | 0.073 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0003 | 0.0004 | 0.0006 | 0.0004 | 0.0002 | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0079 | 0.0078 | 0.0047 | 0.0089 | 0.0043 | 0.0062 |
| Potassium | ug/l | -- | mg/L | -- | 13.1 | 12.4 | 13.6 | 12.2 | 10.3 | 11.7 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 0.84 | 1.12 | 0.21 | 1.63 | 0.28 | 0.79 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Sodium | ug/l | -- | mg/L | -- | 82.6 | 86.1 | 90.7 | 76.1 | 69.5 | 67.6 |
| Strontium | ug/l | -- | mg/L | -- | 0.46 | 0.3 | 0.317 | 0.527 | 0.333 | 0.367 |
| Sulfur | ug/l | -- | mg/L | -- | 9.6 | 10.2 | 10.9 | 18.4 | 8.2 | 9.3 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.008 | < 0.005 | < 0.005 | < 0.005 | < 0.005 | 0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0029 | 0.0044 | 0.0039 | 0.001 | 0.0015 | 0.0003 |
| Zinc | ug/l | 30 ⁽¹³⁾ | mg/L | 0.03 ⁽¹³⁾ | 0.009 | 0.013 | < 0.005 | 0.057 | 0.067 | 0.008 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 17.53 | 11.46 | 10.58 | 10.34 | 15.88 | 6.64 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 805 | 785 | 813 | 922 | 596 | 645 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.4 | 9.5 | 8.9 | 8.3 | 8.9 | 8.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 26 | 22.1 | 13.9 | 12.2 | 26.7 | 9.2 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|-----------|-----------|--------------|-------------|
| | | | | | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-18 | 24-Apr-19 | 24-Sept-2019 | 31-Oct-2019 |
| | | | | | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 | GS-15 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 306 | 169 | 224 | 238 | 180 | 204 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.122 | 0.043 | 0.001 | 0.057 | 0.030 | 0.001 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 3.41 | 0.05 | 0.05 | 3.8 | 0.05 | 0.06 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | <3 | 4 | 9 | < 3 | < 3 | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 100 | 92 | 80 | 117 | 64 | 60 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 84.5 | 93.9 | 94.1 | 58.1 | 66.6 | 86.5 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | 861 | 661 | 752 | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 17.5 | 20.3 | 17.2 | 24.2 | 19.5 | 17.7 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 286 | 160 | 207 | 239 | 168 | 203 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.36 | < 0.05 | 0.1 | 0.4 | < 0.05 | < 0.05 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 5.4 | 2.3 | 1.9 | 5.5 | 1.9 | 1.8 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.07 | 0.05 | 0.050 | 0.060 | 0.050 | 0.050 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 30 | 23 | 27 | 28 | 21 | 28 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 472 | 348 | 404 | 373 | 332 | 387 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.06 | 0.04 | 0.040 | 0.500 | 0.03 | 0.05 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.05 | 0.03 | 0.100 | 0.030 | 0.02 | 0.03 |
| Barium | ug/l | -- | mg/L | -- | 0.037 | 0.008 | 0.045 | 0.053 | 0.019 | 0.029 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.729 | 0.819 | 0.766 | 0.535 | 0.872 | 0.823 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | <0.000015 | 0.000021 | 0.000041 | 0.000026 | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 69.4 | 15.7 | 36.8 | 61.2 | 19 | 32.5 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.001 | <0.001 | <0.001 | 0.002 | < 0.001 | < 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0006 | 0.0003 | 0.0004 | 0.0008 | 0.0003 | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0011 | 0.0003 | 0.0062 | 0.0022 | 0.0027 | 0.0015 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.086 | 0.035 | 0.163 | 0.56 | 0.035 | 0.089 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | 0.00003 | 0.00005 | 0.00031 | 0.00061 | 0.00034 | 0.0001 |
| Magnesium | ug/l | -- | mg/L | -- | 27.4 | 27.9 | 28.1 | 21.8 | 29.4 | 29.9 |
| Manganese | ug/l | -- | mg/L | -- | 0.202 | 0.116 | 0.05 | 0.45 | 0.086 | 0.091 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00003 | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | <0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0003 |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0056 | 0.0037 | 0.0043 | 0.0036 | 0.0049 | 0.0036 |
| Potassium | ug/l | -- | mg/L | -- | 11 | 9.9 | 11 | 9.2 | 11.5 | 12.1 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 1.33 | 1.17 | 0.32 | 2.11 | 1.04 | 0.95 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.00002 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 61.5 | 75 | 72.5 | 48 | 76.1 | 75.3 |
| Strontium | ug/l | -- | mg/L | -- | 0.43 | 0.203 | 0.325 | 0.358 | 0.219 | 0.274 |
| Sulfur | ug/l | -- | mg/L | -- | 9.1 | 7.5 | 8.3 | 8.9 | 8.9 | 9.4 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.000021 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.005 | <0.005 | 0.005 | 0.017 | < 0.005 | < 0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0012 | 0.0024 | 0.0013 | 0.0011 | 0.0025 | 0.0015 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.006 | 0.021 | 0.012 | < 0.005 | 0.006 | 0.009 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | 0.003 | 0.002 | < 0.002 | < 0.002 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 9.3 | 12.42 | 11.6 | 9.24 | 14.4 | 11.7 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 737 | 496 | 563 | 769 | 661 | 705 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.2 | 9.5 | 8 | 7.9 | 9.4 | 7.6 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 10.4 | 29.8 | 4.6 | 7.8 | 19.8 | 11.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2016+) | (2) (1) PWQO | GS15 | GS15 | GS15 |
|----------------------------------|--------------------------|-------------------------|-------------------------|-----------------------------|-------------|-------------|--------------|
| | | | | | 05-May-2023 | 14-Aug-2023 | 29-Sept-2023 |
| | | | | | GS-15 | GS-15 | GS-15 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 345 | 257 | 270 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | 0.116 | 0.006 | 0.017 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | 3.73 | 0.06 | 0.08 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 5 | 6 | 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 62 | 80 | 68 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 102 | 100 | 109 |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | 867 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 7.5 | 13.8 | 14.6 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 323 | 234 | 217 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.43 | 0.08 | 0.09 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 5.8 | 2.6 | 1.9 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.04 | 0.08 | 0.04 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 46 | 33 | 32 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 538 | -- | 453 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- ⁽⁹⁾ | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 0.06 | 0.04 | 0.02 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.03 | 0.03 | 0.03 |
| Barium | ug/l | -- | mg/L | -- | 0.058 | 0.043 | 0.031 |
| Beryllium | ug/l | 11-1100 ⁽¹¹⁾ | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | <0.0001 | <0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.689 | 0.816 | 0.877 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000016 | <0.000015 | <0.000015 |
| Calcium | ug/l | -- | mg/L | -- | 72.8 | 43.3 | 36.8 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | 14 | 0.004 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.001 | 0.0003 | 0.0002 |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.001 | 0.0006 | 0.0005 |
| Iron | ug/l | 300 | mg/L | 0.3 | 0.076 | 0.033 | 0.021 |
| Lead | ug/l | -- ⁽¹⁵⁾ | mg/L | -- ⁽¹⁵⁾ | 0.00006 | 0.00006 | 0.00003 |
| Magnesium | ug/l | -- | mg/L | -- | 26.8 | 30.5 | 30.4 |
| Manganese | ug/l | -- | mg/L | -- | 0.069 | 0.163 | 0.059 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0003 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.0049 | 0.0039 | 0.0036 |
| Potassium | ug/l | -- | mg/L | -- | 13.4 | 16.1 | 15.9 |
| Selenium | ug/l | 100 | mg/L | 0.1 | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 2.26 | 0.47 | 0.9 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Sodium | ug/l | -- | mg/L | -- | 74.0 | 88.6 | 90.4 |
| Strontium | ug/l | -- | mg/L | -- | 0.484 | 0.381 | 0.361 |
| Sulfur | ug/l | -- | mg/L | -- | 11.3 | 11.1 | 11.1 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | <0.00005 | <0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | < 0.005 | <0.005 | <0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0005 | 0.0003 | 0.0007 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | 0.005 | <0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | <0.001 | 0.003 |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8.2 | 7.3 | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 1100 | 836 | 768 |
| pH (Field) | - | 8.5 | - | 8.5 | 8.06 | 8.26 | 8.74 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | deg c | -- ⁽⁶⁾ | 12.7 | 23.7 | 19.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|----------------------------|----------------------------|----------------------------|-------------|
| | | | 06-Sep-1992 | 28-Nov-1992 | 04-May-1993 ⁽⁴⁾ | 29-Aug-1993 ⁽⁴⁾ | 11-Nov-1993 ⁽⁴⁾ | 04-Jun-1994 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 160000 | 82000 | -- | -- | -- | 70000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | -- | -- | -- | <20 |
| Ammonia Nitrogen | mg/L | -- | 130 | 60 | -- | -- | -- | 150 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 3000 | 1000 | -- | -- | -- | 2000 |
| Chemical Oxygen Demand | mg/L | -- | 38000 | 41000 | -- | -- | -- | 40000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 49000 | 22000 | -- | -- | -- | 14000 |
| Color | color unit | -- | 41 | 211 | -- | -- | -- | 165 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | 12000 |
| Hardness, Calcium Carbonate | mg/L | -- | 164000 | 90000 | -- | -- | -- | 93000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | 180 | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 480 | 500 | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 350 | 440 | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 110 | 220 | -- | -- | -- | 170 |
| Sulphate | mg/L | 128-429 (BC FW) | <3000 | 12000 | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 280000 | 158000 | -- | -- | -- | 110000 |
| Total Organic Carbon | mg/L | -- | 12000 | 15000 | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | 4000 | 8000 | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | 2.3 | 11 | -- | -- | -- | 6 |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 120 | 870 | -- | -- | -- | 180 |
| Barium | mg/L | -- | 30 | 30 | -- | -- | -- | 10 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | -- | -- | -- | -- | <10 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 40 | 10 | -- | -- | -- | <10 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | -- | -- | -- | <0.15 |
| Calcium | mg/L | -- | 41000 | 23000 | -- | -- | -- | 24000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 30 | <10 | -- | -- | -- | <10 |
| Cobalt | mg/L | 0.0009 | <10 | -- | -- | -- | -- | <0.4 |
| Copper | mg/L | 0.005 | <5 | <5 | -- | -- | -- | <5 |
| Iron | mg/L | 0.3 | 1300 | 1080 | -- | -- | -- | 830 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 2 | <2 | -- | -- | -- | <2 |
| Magnesium | mg/L | -- | 15000 | 8000 | -- | -- | -- | 8000 |
| Manganese | mg/L | -- | 690 | 60 | -- | -- | -- | 160 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | -- | -- | -- | <0.2 |
| Molybdenum | mg/L | 0.04 | <10 | -- | -- | -- | -- | <10 |
| Nickel | mg/L | 0.025 | <10 | <10 | -- | -- | -- | <10 |
| Potassium | mg/L | -- | 5000 | 3000 | -- | -- | -- | <1000 |
| Selenium | mg/L | 0.1 | <1 | <1 | -- | -- | -- | -- |
| Silicon | mg/L | -- | 6600 | -- | -- | -- | -- | 3900 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | -- | -- | -- | <0.1 |
| Sodium | mg/L | -- | 28000 | 13000 | -- | -- | -- | 6000 |
| Strontium | mg/L | -- | 160 | 90 | -- | -- | -- | 70 |
| Sulfur | mg/L | -- | <3000 | -- | -- | -- | -- | 4000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <50 | -- | -- | -- | -- | <5 |
| Tin | mg/L | -- | <50 | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | -- | -- | -- | -- | <10 |
| Vanadium | mg/L | 0.006 | 10 | -- | -- | -- | -- | <7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 90 | <10 | -- | -- | -- | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | 2 | <1 | -- | -- | -- | 1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 1600 | 12100 | -- | -- | -- | 11400 |
| Conductivity (Field) | uS/cm | -- | 470 | 210 | -- | -- | -- | 155 |
| pH (Field) | - | 8.5 | 7 | 7 | -- | -- | -- | 6.5 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 8 | 1 | -- | -- | -- | 14 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|----------------------------|-------------|----------------------------|-------------|-------------|
| | | | 07-Sep-1994 | 24-Nov-1994 ⁽⁴⁾ | 28-May-1995 | 11-Sep-1995 ⁽⁵⁾ | 07-Nov-1995 | 17-Jul-1996 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 182000 | -- | 85000 | -- | -- | 79000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | -- | <20 | -- | -- | <20 |
| Ammonia Nitrogen | mg/L | -- | 30 | -- | 60 | -- | -- | 100 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 1000 | -- | <1000 | -- | -- | <3000 |
| Chemical Oxygen Demand | mg/L | -- | 20000 | -- | 26000 | -- | -- | 27000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 58000 | -- | 15000 | -- | 22000 | 19000 |
| Color | color unit | -- | 26 | -- | 105 | -- | -- | 43 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 7500 | -- | 12800 | -- | -- | 10600 |
| Hardness, Calcium Carbonate | mg/L | -- | 233000 | -- | 95000 | -- | -- | 90000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 50 | -- | 80 | -- | 120 | 90 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 320000 | -- | 128000 | -- | -- | 152000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | 4.3 | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | <30 | -- | 550 | -- | -- | 440 |
| Barium | mg/L | -- | 20 | -- | 20 | -- | -- | 20 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | -- | <10 | -- | -- | <10 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 20 | -- | 10 | -- | -- | <10 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | -- | <0.15 | -- | -- | <0.15 |
| Calcium | mg/L | -- | 67000 | -- | 25000 | -- | -- | 23000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <10 | -- | <10 | -- | -- | <10 |
| Cobalt | mg/L | 0.0009 | <0.4 | -- | 0.4 | -- | -- | 0.5 |
| Copper | mg/L | 0.005 | <5 | -- | <5 | -- | -- | <5 |
| Iron | mg/L | 0.3 | 580 | -- | 1370 | -- | 1010 | 960 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | -- | <2 | -- | -- | <2 |
| Magnesium | mg/L | -- | 16000 | -- | 8000 | -- | -- | 8000 |
| Manganese | mg/L | -- | 210 | -- | 130 | -- | -- | 60 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | -- | <0.2 | -- | -- | 0.7 |
| Molybdenum | mg/L | 0.04 | <10 | -- | <10 | -- | -- | <10 |
| Nickel | mg/L | 0.025 | <10 | -- | <10 | -- | -- | <10 |
| Potassium | mg/L | -- | 3000 | -- | 1000 | -- | -- | 3000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 2600 | -- | 5400 | -- | -- | 5700 |
| Silver | mg/L | 0.0001 | 0.4 | -- | <0.1 | -- | -- | <0.1 |
| Sodium | mg/L | -- | 25000 | -- | 11000 | -- | -- | 13000 |
| Strontium | mg/L | -- | 177 | -- | 85 | -- | -- | 100 |
| Sulfur | mg/L | -- | 7000 | -- | 3000 | -- | -- | 6000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | -- | <10 | -- | -- | <5 |
| Tin | mg/L | -- | -- | -- | <50 | -- | -- | -- |
| Titanium | mg/L | -- | <10 | -- | 30 | -- | -- | 20 |
| Vanadium | mg/L | 0.006 | <7 | -- | 7 | -- | -- | <7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 20 | -- | <10 | -- | -- | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | 1 | -- | -- | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9500 | -- | 11400 | -- | -- | 8700 |
| Conductivity (Field) | uS/cm | -- | 500 | -- | 210 | -- | 255 | 170 |
| pH (Field) | - | 8.5 | 7.8 | -- | 7 | -- | 8.4 | 6.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 14 | -- | 13.5 | -- | 6 | 21 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 22-Nov-1996 | 10-Jun-1997 | 09-Sep-1997 | 06-Apr-1998 | 09-Jun-1998 | 25-Jun-1998 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 73000 | 120000 | 108000 | 40000 | 109000 | 61000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 410 | <20 | 50 | 60 | 130 | 20 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 1000 | 3000 | 3000 | <1000 | 6000 | <1000 |
| Chemical Oxygen Demand | mg/L | -- | 32000 | 29000 | 28000 | 31000 | 34000 | 61000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 15000 | 11000 | 11000 | 33000 | 29000 | 11000 |
| Color | color unit | -- | 54 | 26 | 32 | 71 | 76 | 112 |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 11200 | 9900 | 11300 | 11000 | 14000 | 18000 |
| Hardness, Calcium Carbonate | mg/L | -- | 80000 | 117000 | 117000 | 53000 | 115000 | 72000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | 300 | <100 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | 590 | 1050 | 1760 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 230 | 110 | 120 | 90 | 200 | 280 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | 11000 | 4000 | 6000 |
| Total Dissolved Solids | mg/L | -- | 140000 | 172000 | 136000 | 92000 | 320000 | 104000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 230 | 120 | 150 | 370 | 210 | 270 |
| Barium | mg/L | -- | 20 | 30 | 30 | 10 | 20 | <10 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | 10 | <10 | <10 | <10 | <10 | <10 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 30 | <10 | <10 | 40 | <10 | <10 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 | <0.15 |
| Calcium | mg/L | -- | 19000 | 32000 | 32000 | 13000 | 31000 | 19000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <10 | <10 | <10 | <10 | <10 | <10 |
| Cobalt | mg/L | 0.0009 | 2.4 | 0.7 | 0.6 | <0.4 | 1 | 1.6 |
| Copper | mg/L | 0.005 | <5 | <5 | <5 | <5 | <5 | <5 |
| Iron | mg/L | 0.3 | 1030 | 1040 | 900 | 400 | 1990 | 1920 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | <2 | <2 | <2 | 6 |
| Magnesium | mg/L | -- | 8000 | 9000 | 9000 | 5000 | 9000 | 6000 |
| Manganese | mg/L | -- | 110 | 170 | 290 | 50 | 310 | 420 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | 2.2 | <0.2 | <0.2 | <0.2 |
| Molybdenum | mg/L | 0.04 | <30 | <10 | <10 | <10 | <10 | <10 |
| Nickel | mg/L | 0.025 | <10 | <10 | <10 | <10 | <10 | <10 |
| Potassium | mg/L | -- | 1000 | 2000 | 3000 | 2000 | 4000 | 3000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 6000 | 5100 | 3300 | 3100 | 3000 | 5300 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 9000 | 10000 | 7000 | 6000 | 16000 | 7000 |
| Strontium | mg/L | -- | 75 | 117 | 109 | 51 | 112 | 72 |
| Sulfur | mg/L | -- | <3000 | 4000 | 5000 | 4000 | <3000 | 3000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | <5 | <5 | <5 | <5 |
| Tin | mg/L | -- | <50 | <50 | <50 | <50 | <50 | <50 |
| Titanium | mg/L | -- | <10 | <10 | <10 | <10 | <10 | <10 |
| Vanadium | mg/L | 0.006 | <7 | <7 | <7 | <7 | <7 | <7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | 30 | <10 | <10 | <10 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 12100 | 10200 | 3200 | 9800 | 6100 | 1800 |
| Conductivity (Field) | uS/cm | -- | 130 | 280 | 220 | 110 | 210 | 170 |
| pH (Field) | - | 8.5 | 6.9 | 7.3 | 7 | 7.01 | 7.48 | 6.83 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 0.5 | 20 | 21 | 8.5 | 27 | 25.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 17-Jul-1998 | 20-Aug-1998 | 26-Sep-1998 | 20-Oct-1998 | 20-Dec-1998 | 23-Apr-1999 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 73000 | 80000 | 72000 | 78000 | 89000 | 64000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | -- | <20 | -- | -- |
| Ammonia Nitrogen | mg/L | -- | 450 | 90 | -- | 70 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 1000 | 7000 | -- | 4000 | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 53000 | 43000 | 26000 | 37000 | 15000 | 15000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 16000 | 16000 | 25000 | 23000 | 20000 | 13000 |
| Color | color unit | -- | 106 | 36 | -- | 112 | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 18000 | 13000 | 12000 | 16000 | 10400 | 9200 |
| Hardness, Calcium Carbonate | mg/L | -- | 89000 | 88000 | 95000 | 93000 | 98000 | 70000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | <100 | -- | <100 | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | -- | <100 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1270 | 1440 | -- | 900 | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 260 | 400 | 140 | 230 | 110 | 150 |
| Sulphate | mg/L | 128-429 (BC FW) | 5000 | 6000 | -- | 9000 | -- | -- |
| Total Dissolved Solids | mg/L | -- | 128000 | 140000 | 172000 | 152000 | 172000 | 64000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 210 | 210 | 200 | 290 | 400 | 680 |
| Barium | mg/L | -- | <10 | 30 | -- | 10 | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | <10 | -- | <10 | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <10 | <10 | -- | <10 | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | <0.15 | -- | <0.15 | -- | -- |
| Calcium | mg/L | -- | 24000 | 17000 | -- | 24000 | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <10 | <10 | -- | <10 | -- | -- |
| Cobalt | mg/L | 0.0009 | <0.4 | 1.3 | -- | 0.4 | -- | -- |
| Copper | mg/L | 0.005 | <5 | <5 | -- | <5 | -- | -- |
| Iron | mg/L | 0.3 | 2030 | 6660 | 1090 | 2050 | 870 | 360 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | <2 | -- | <2 | -- | -- |
| Magnesium | mg/L | -- | 7000 | 5000 | -- | 8000 | -- | -- |
| Manganese | mg/L | -- | 290 | 700 | 140 | 120 | 130 | <10 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | <0.2 | -- | <0.2 | -- | -- |
| Molybdenum | mg/L | 0.04 | <10 | <10 | -- | 50 | -- | -- |
| Nickel | mg/L | 0.025 | <10 | <10 | -- | <10 | -- | -- |
| Potassium | mg/L | -- | <1000 | 5000 | -- | 3000 | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 5300 | 5600 | -- | 7200 | -- | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | -- | <0.1 | -- | -- |
| Sodium | mg/L | -- | 12000 | 9000 | 16000 | 14000 | 13000 | 8000 |
| Strontium | mg/L | -- | 64 | 84 | 83 | 84 | 94 | 62 |
| Sulfur | mg/L | -- | <3000 | <3000 | -- | 3000 | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | <5 | -- | <5 | -- | -- |
| Tin | mg/L | -- | <50 | <50 | -- | <50 | -- | -- |
| Titanium | mg/L | -- | <10 | <10 | -- | 80 | -- | -- |
| Vanadium | mg/L | 0.006 | <7 | <7 | -- | <7 | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | -- | <10 | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | 5 | -- | <1 | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 5200 | 4500 | 2300 | 7000 | 10600 | 11000 |
| Conductivity (Field) | uS/cm | -- | 240 | 180 | 210 | 210 | 190 | 120 |
| pH (Field) | - | 8.5 | 6.6 | 6.2 | 6.11 | 7.29 | 6.9 | 7.2 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 24 | 19 | 11 | 10 | -2 | 11.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|----------------------------|-------------|-------------|
| | | | 26-May-1999 | 25-Jun-1999 | 29-Jul-1999 | 31-Aug-1999 ⁽⁶⁾ | 30-Sep-1999 | 27-Oct-1999 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 101000 | 333000 | 129000 | -- | 76000 | 80000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | 30 | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 6000 | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 34000 | 88000 | 30000 | -- | 46000 | 41000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 21000 | 22000 | 58000 | -- | 22000 | 23000 |
| Color | color unit | -- | 43 | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 14000 | 32800 | 16800 | -- | 15700 | 14700 |
| Hardness, Calcium Carbonate | mg/L | -- | 100000 | 336000 | 162000 | -- | 102000 | 100000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 180 | 490 | 240 | -- | 500 | 80 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 152000 | 396000 | 256000 | -- | 176000 | 160000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 750 | 50 | 50 | -- | 1090 | 350 |
| Barium | mg/L | -- | 20 | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <10 | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 10 | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.15 | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | 27000 | -- | -- | -- | -- | 27000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <10 | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.8 | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | <5 | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 430 | 2960 | 2270 | -- | 1840 | 1160 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <2 | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 8000 | -- | -- | -- | -- | 8000 |
| Manganese | mg/L | -- | 180 | 4190 | 460 | -- | 70 | 60 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.2 | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | <10 | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | <10 | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | 2000 | -- | -- | -- | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 2800 | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | <0.1 | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 14000 | 19000 | 33000 | -- | 14000 | 15000 |
| Strontium | mg/L | -- | 95 | 269 | 147 | -- | 101 | 91 |
| Sulfur | mg/L | -- | <3000 | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <5 | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | <50 | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | <10 | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | <7 | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7700 | 4700 | 8700 | -- | -- | -- |
| Conductivity (Field) | uS/cm | -- | 220 | 665 | 490 | -- | 280 | 250 |
| pH (Field) | - | 8.5 | 6.6 | 6.9 | 7.1 | -- | 7.14 | 7.46 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 15 | 19 | 29 | -- | 13 | 8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 29-Nov-1999 | 21-Dec-1999 | 28-Apr-2000 | 01-Jun-2000 | 29-Jun-2000 | 27-Jul-2000 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 48000 | 87000 | 64000 | 69000 | 63000 | 121000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | <20 | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | 30 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | <1000 | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 48000 | 22000 | 30000 | 38000 | 66000 | 23000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 17000 | 33000 | 8000 | 25000 | 11000 | 27000 |
| Color | color unit | -- | -- | -- | -- | 100 | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 15200 | 11700 | 12000 | 13500 | 16400 | 8800 |
| Hardness, Calcium Carbonate | mg/L | -- | 77000 | 107000 | 72000 | 72000 | 77000 | 120000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 120 | 470 | 50 | 50 | 60 | 60 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 120000 | 172000 | 100000 | 116000 | 96000 | 188000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 470 | 430 | 250 | 230 | 260 | 80 |
| Barium | mg/L | -- | -- | -- | -- | 70 | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | <2 | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | <10 | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | <0.1 | -- | -- |
| Calcium | mg/L | -- | 21000 | 28000 | 19000 | 19000 | 21000 | 33000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | <10 | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | <0.4 | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | <10 | -- | -- |
| Iron | mg/L | 0.3 | 840 | 730 | 910 | 1080 | 1180 | 390 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | <2 | -- | -- |
| Magnesium | mg/L | -- | 6000 | 9000 | 6000 | 6000 | 6000 | 9000 |
| Manganese | mg/L | -- | 80 | 170 | 100 | 80 | 80 | 60 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | <0.1 | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | <10 | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | <10 | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | 1000 | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | 4750 | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | <0.1 | -- | -- |
| Sodium | mg/L | -- | 10000 | 18000 | 8000 | 11000 | 6000 | 19000 |
| Strontium | mg/L | -- | 79 | 101 | 57 | 64 | 71 | 110 |
| Sulfur | mg/L | -- | -- | -- | -- | <1000 | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | <2 | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | 10 | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | <2 | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | 20 | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | <1 | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | -- | 11350 | 3100 | 8400 | 7600 |
| Conductivity (Field) | uS/cm | -- | 191 | 200 | 209 | 250 | 220 | 281 |
| pH (Field) | - | 8.5 | 6.98 | 7.43 | 7.02 | 6.79 | 6.4 | 6.51 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 2 | 0 | 11.7 | 8 | 19 | 19.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 18-Aug-2000 | 27-Sep-2000 | 30-Oct-2000 | 01-Dec-2000 | 21-Dec-2000 | 30-May-2001 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- (9) | 102000 | 87000 | 98000 | 66000 | 74000 | 90000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | -- | -- | -- | -- | <20 |
| Ammonia Nitrogen | mg/L | -- | 40 | -- | -- | -- | -- | 40 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <1000 | -- | -- | -- | -- | 1000 |
| Chemical Oxygen Demand | mg/L | -- | 33000 | 27000 | 26000 | 36000 | 22000 | 22000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 29000 | 19000 | 16000 | 17000 | 15000 | 33000 |
| Color | color unit | -- | 73 | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 13700 | 10400 | 1900 | 14800 | 9900 | 12900 |
| Hardness, Calcium Carbonate | mg/L | -- | 103000 | 100000 | 102000 | 88000 | 75000 | 106000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | 280 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | 660 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 (7) | 120 | 80 | 110 | 90 | 110 | 220 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | 12000 |
| Total Dissolved Solids | mg/L | -- | 176000 | 112000 | 180000 | 112000 | 180000 | 236000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- (9) | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 (10) | 540 | 300 | 590 | 280 | 90 | 60 |
| Barium | mg/L | -- | 20 | -- | -- | -- | -- | 20 |
| Beryllium | mg/L | 0.011-1.1 (11) | <2 | -- | -- | -- | -- | <2 |
| Boron | mg/L | 0.2 (12) | <10 | -- | -- | -- | -- | <10 |
| Cadmium | mg/L | 0.0002 (13) | <0.1 | -- | -- | -- | -- | <0.1 |
| Calcium | mg/L | -- | 28000 | 27000 | 26000 | 22000 | 20000 | 26000 |
| Chromium | mg/L | -- (14) | <10 | -- | -- | -- | -- | <1 |
| Cobalt | mg/L | 0.0009 | 0.7 | -- | -- | -- | -- | <0.2 |
| Copper | mg/L | 0.005 | 1 | -- | -- | -- | -- | <1 |
| Iron | mg/L | 0.3 | 950 | 610 | 1200 | 1310 | 1270 | 990 |
| Lead | mg/L | 0.005-0.025 (15) | <1 | -- | -- | -- | -- | <1 |
| Magnesium | mg/L | -- | 8000 | 8000 | 9000 | 8000 | 6000 | 10000 |
| Manganese | mg/L | -- | 30 | 80 | 90 | 130 | 160 | 120 |
| Mercury, dissolved | mg/L | 0.0002 (16) | <0.1 | -- | -- | -- | -- | <0.1 |
| Molybdenum | mg/L | 0.04 | <10 | -- | -- | -- | -- | <10 |
| Nickel | mg/L | 0.025 | <10 | -- | -- | -- | -- | <10 |
| Potassium | mg/L | -- | 2000 | -- | -- | -- | -- | 2000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 6300 | -- | -- | -- | -- | 5410 |
| Silver | mg/L | 0.0001 | <0.1 | -- | -- | -- | -- | <0.1 |
| Sodium | mg/L | -- | 20000 | 14000 | 11000 | 8000 | 9000 | 19000 |
| Strontium | mg/L | -- | 90 | 91 | 85 | 80 | 68 | 94 |
| Sulfur | mg/L | -- | 3000 | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 (17) | <1 | -- | -- | -- | -- | <1 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 10 | -- | -- | -- | -- | 20 |
| Vanadium | mg/L | 0.006 | <1 | -- | -- | -- | -- | <1 |
| Zinc | mg/L | 0.03 (18) | 20 | -- | -- | -- | -- | 10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 (19) | <1 | -- | -- | -- | -- | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- (6) | 9500 | 11390 | 12080 | 13800 | -- | 10800 |
| Conductivity (Field) | uS/cm | -- | 283 | 244 | 214 | 270 | 12 | 712 |
| pH (Field) | - | 8.5 | 7.7 | 7.11 | 7.21 | 7 | 7.7 | 7.18 |
| Temperature (Field) | deg c | -- (6) | 17.4 | 11.2 | 6.7 | 1 | 0 | 9 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|----------------------------|-------------|----------------------------|-------------|-------------|-------------|
| | | | 10-Aug-2001 ⁽⁶⁾ | 05-Apr-2002 | 06-Aug-2002 ⁽⁶⁾ | 01-Nov-2002 | 12-May-2003 | 26-Aug-2003 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | -- | 46000 | -- | 176000 | 60000 | 167000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | <20 | -- | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | 100 | -- | <20 | <20 | 20 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | 2000 | -- | <1000 | <1000 | 2000 |
| Chemical Oxygen Demand | mg/L | -- | -- | 25000 | -- | 23000 | 41000 | 20000 |
| Chloride | mg/L | 120-640 (CWQG FW) | -- | 17000 | -- | 119000 | 30000 | 45000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | -- | 9100 | -- | 8900 | 13500 | 9100 |
| Hardness, Calcium Carbonate | mg/L | -- | -- | 58000 | -- | 246000 | 77000 | 183000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 400 | -- | <100 | <100 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | <100 | -- | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 590 | -- | 730 | 760 | 860 |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | 250 | -- | 390 | 170 | 120 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 16000 | -- | 63000 | 29000 | 16000 |
| Total Dissolved Solids | mg/L | -- | -- | 118000 | -- | 554000 | 159000 | 300000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 130 | -- | 650 | 150 | <10 |
| Barium | mg/L | -- | -- | 10 | -- | 50 | 20 | 20 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <2 | -- | <1 | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | <50 | -- | <50 | <50 | <50 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | -- | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | -- | 15000 | -- | 64000 | 21000 | 50000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | <1 | -- | 2 | 3 | 6 |
| Cobalt | mg/L | 0.0009 | -- | 0.2 | -- | 0.5 | 0.7 | 0.3 |
| Copper | mg/L | 0.005 | -- | 1 | -- | 6 | 3 | <1 |
| Iron | mg/L | 0.3 | -- | 140 | -- | 550 | 930 | 330 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <1 | -- | <1 | <1 | <1 |
| Magnesium | mg/L | -- | -- | 5000 | -- | 21000 | 6000 | 14000 |
| Manganese | mg/L | -- | -- | 40 | -- | 20 | 60 | 181 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | -- | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | -- | <10 | -- | <5 | <5 | <5 |
| Nickel | mg/L | 0.025 | -- | <10 | -- | <5 | <5 | <5 |
| Potassium | mg/L | -- | -- | 2000 | -- | 18000 | 2000 | 4000 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 4000 | -- | 4500 | 5000 | 5300 |
| Silver | mg/L | 0.0001 | -- | <0.1 | -- | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | -- | 13000 | -- | 71000 | 20000 | 24000 |
| Strontium | mg/L | -- | -- | 55 | -- | 187 | 77 | 143 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <1 | -- | <1 | <1 | <1 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | <10 | -- | 30 | 40 | <10 |
| Vanadium | mg/L | 0.006 | -- | 1 | -- | 2 | 3 | 3 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | <10 | -- | <5 | 8 | <5 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | -- | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | 13340 | -- | 4720 | 9140 | 5440 |
| Conductivity (Field) | uS/cm | -- | -- | 130 | -- | 170 | 130 | 110 |
| pH (Field) | - | 8.5 | -- | 6.8 | -- | 6.9 | 7.6 | 7.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | -- | 3 | -- | 3 | 12 | 16 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|----------------------------|
| | | | 19-Nov-2003 | 26-May-2004 | 28-Aug-2004 | 25-Nov-2004 | 26-May-2005 | 26-Aug-2005 ⁽⁹⁾ |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 60000 | 76000 | 124000 | 64000 | 78000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | 180 | 90 | 80 | 260 | 70 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 2000 | 600 | 1000 | 2700 | 1000 | -- |
| Chemical Oxygen Demand | mg/L | -- | 31000 | 26000 | 51000 | 91000 | 26000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 20000 | 21800 | 21800 | 35900 | 22000 | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 11900 | 12600 | 12800 | 19100 | 10900 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 71000 | 84500 | 136000 | 83900 | 86000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 240 | <200 | <200 | 2300 | <100 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <200 | <200 | <200 | <100 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 750 | 630 | 730 | 2790 | 650 | -- |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 380 | 191 | 105 | 829 | 90 | -- |
| Sulphate | mg/L | 128-429 (BC FW) | 23000 | 5900 | 10100 | 14400 | 9000 | -- |
| Total Dissolved Solids | mg/L | -- | 140000 | 184000 | 190000 | 254000 | 154000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | 943 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 170 | 176 | 247 | 4450 | 70 | -- |
| Barium | mg/L | -- | 40 | 22 | 26 | 61 | 10 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | <1 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 10 | 12 | 12 | <5 | 10 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Calcium | mg/L | -- | 17000 | 22500 | 38400 | 21000 | 23000 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 3 | <5 | <5 | 10 | 1 | -- |
| Cobalt | mg/L | 0.0009 | 0.8 | 0.6 | 0.3 | 2.1 | 0.2 | -- |
| Copper | mg/L | 0.005 | 3 | 3.1 | 3.4 | 10.4 | 2 | -- |
| Iron | mg/L | 0.3 | 1090 | 1650 | 690 | 4860 | 810 | -- |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | 0.7 | <0.5 | 1.8 | <1 | -- |
| Magnesium | mg/L | -- | 7000 | 6900 | 9740 | 7640 | 7000 | -- |
| Manganese | mg/L | -- | 50 | 79 | 235 | 93 | 40 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Molybdenum | mg/L | 0.04 | <5 | <1 | <1 | <1 | <5 | -- |
| Nickel | mg/L | 0.025 | <5 | 2 | 1 | 6 | <5 | -- |
| Potassium | mg/L | -- | 5000 | 1800 | 2800 | 13400 | 1000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 5800 | 5550 | 3820 | 11100 | 3900 | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Sodium | mg/L | -- | 14000 | 14700 | 13600 | 15500 | 14000 | -- |
| Strontium | mg/L | -- | 80 | 75 | 117 | 88 | 77 | -- |
| Sulfur | mg/L | -- | -- | 2700 | 3500 | 5300 | 3000 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <1 | <0.05 | <0.05 | 0.05 | <0.1 | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 20 | 43 | 12 | 239 | 20 | -- |
| Vanadium | mg/L | 0.006 | 3 | 3.3 | 1.6 | 8.5 | 2 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 10 | 20 | 12 | 27 | <10 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | 1 | 1 | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 5980 | 8810 | 6410 | 8110 | 8710 | -- |
| Conductivity (Field) | uS/cm | -- | 140 | 186 | 185 | 660 | 237 | -- |
| pH (Field) | - | 8.5 | 7.2 | 8.02 | 7.3 | 7 | 7.2 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 1 | 16.1 | 18 | 1 | 9 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|----------------------------|----------------------------|
| | | | 15-Nov-2005 | 01-Jun-2006 | 06-Sep-2006 | 20-Nov-2006 | 29-May-2007 ⁽³⁾ | 23-Aug-2007 ⁽³⁾ |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 75000 | 110000 | 80000 | 63000 | -- | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | -- | -- |
| Ammonia Nitrogen | mg/L | -- | <20 | 50 | 50 | 50 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <1000 | <1000 | <1000 | <1000 | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 41000 | 31000 | 52000 | 33000 | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 34000 | 32000 | 26000 | 12000 | -- | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 15100 | 13400 | 19900 | 13900 | -- | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 102000 | 80000 | 75000 | 65000 | -- | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 110 | <100 | <100 | 150 | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | <100 | <100 | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 580 | 510 | 790 | 570 | -- | -- |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 190 | 170 | 130 | 140 | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | 14000 | 7000 | 8000 | 7000 | -- | -- |
| Total Dissolved Solids | mg/L | -- | 190000 | 213000 | 171000 | 112000 | -- | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 150 | 470 | 400 | 220 | -- | -- |
| Barium | mg/L | -- | 20 | 20 | 20 | 20 | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | <1 | <1 | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <10 | 70 | 50 | 20 | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | -- |
| Calcium | mg/L | -- | 26000 | 22000 | 20000 | 16000 | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 3 | 3 | 3 | 1 | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.4 | 0.4 | 0.4 | 0.4 | -- | -- |
| Copper | mg/L | 0.005 | 2 | 2 | 2 | 1 | -- | -- |
| Iron | mg/L | 0.3 | 820 | 1060 | 1290 | 860 | -- | -- |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | <1 | <1 | <1 | -- | -- |
| Magnesium | mg/L | -- | 9000 | 6000 | 6000 | 6000 | -- | -- |
| Manganese | mg/L | -- | 40 | 90 | 100 | 80 | -- | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | -- |
| Molybdenum | mg/L | 0.04 | <5 | <5 | <5 | <5 | -- | -- |
| Nickel | mg/L | 0.025 | <5 | <5 | <5 | <5 | -- | -- |
| Potassium | mg/L | -- | 2000 | 2000 | 2000 | 1000 | -- | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 8100 | 4400 | 7700 | 6500 | -- | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | -- | -- |
| Sodium | mg/L | -- | 21000 | 33000 | 26000 | 12000 | -- | -- |
| Strontium | mg/L | -- | 83 | 80 | 75 | 51 | -- | -- |
| Sulfur | mg/L | -- | 4700 | 2300 | 2700 | 2300 | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | <0.1 | <0.1 | <0.1 | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 30 | 20 | 20 | 20 | -- | -- |
| Vanadium | mg/L | 0.006 | 3 | 3 | 3 | 2 | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 50 | 10 | 30 | 10 | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | <1 | <1 | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 6900 | -- | 9990 | 10010 | -- | -- |
| Conductivity (Field) | uS/cm | -- | 130 | 350 | 440 | 395 | -- | -- |
| pH (Field) | - | 8.5 | 7.4 | 8.3 | 7.3 | 7.3 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 8.2 | 21 | 10 | 2 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-----------------------|---------------------------|
| | | | 25-Nov-2007 | 01-May-2008 | 11-Aug-2008 | 04-Nov-2008 | 09-Apr-2009 C-8 | 05-Aug-2009 GS-17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 90000 | 53000 | 127000 | 94000 | 53000 | 101000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 30 | 50 | 30 | 50 | <50 | 50 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | <1000 | 1000 | 2000 | <2000 | 3000 |
| Chemical Oxygen Demand | mg/L | -- | -- | 28000 | 22000 | 35000 | 23000 | 71000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 18000 | 19000 | 47000 | 33000 | 19000 ⁽²¹⁾ | 38000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9300 | 14400 | 12000 | 14100 | 11000 | 28100 |
| Hardness, Calcium Carbonate | mg/L | -- | 105000 | 61000 | 110000 | 88000 | 58000 | 91000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 110 | 120 | 340 | 200 | <100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | <100 | <100 | <100 | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 620 | 660 | 500 | 500 | 1700 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | 200 | <100 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 320 | 110 | 160 | 210 | 86 | 480⁽²⁷⁾ |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 8000 | 8000 | 13000 | <5000 ⁽²¹⁾ | <10000 ⁽²¹⁾ |
| Total Dissolved Solids | mg/L | -- | 176000 | 122000 | 274000 | 213000 | 120000 | 215000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 360 | 80 | 110 | 160 | 120 |
| Barium | mg/L | -- | -- | 20 | 30 | 30 | 20 | 41 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <1 | <1 | <1 | <0.5 | <0.5 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | <10 | 20 | 60 | 30 | 20 | 30 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Calcium | mg/L | -- | 29000 | 16000 | 31000 | 22000 | 15000 | 25000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | 3 | 5 | 2 | <5 | <5 |
| Cobalt | mg/L | 0.0009 | -- | 0.5 | 0.4 | 0.4 | 0.5 | 1.1 |
| Copper | mg/L | 0.005 | -- | 2 | 1 | 2 | 1 | 4 |
| Iron | mg/L | 0.3 | 1300 | 1070 | 1090 | 1000 | 900 | 2700 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <1 | <1 | <1 | 0.5 | 1.1 |
| Magnesium | mg/L | -- | 8000 | 5000 | 8000 | 8000 | 4900 | 7500 |
| Manganese | mg/L | -- | 90 | 90 | 70 | 70 | 71 | 190 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | -- | <5 | <5 | <5 | <1 | <1 |
| Nickel | mg/L | 0.025 | -- | <5 | <5 | <5 | 1 | 3 |
| Potassium | mg/L | -- | -- | 1000 | 2000 | 2000 | 1000 | 7300 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 6500 | 6900 | 7200 | 5400 | 11000 |
| Silver | mg/L | 0.0001 | -- | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| Sodium | mg/L | -- | 11000 | 14000 | 40000 | 24000 | 13000 | 29000 |
| Strontium | mg/L | -- | -- | 56 | 129 | 87 | 54 | 100 |
| Sulfur | mg/L | -- | -- | 3000 | 3000 | 4000 | 2500 | 2100 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.1 | <0.1 | <0.1 | <0.05 | <0.05 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 40 | 30 | 20 | 45 | 110 |
| Vanadium | mg/L | 0.006 | -- | 3 | 4 | 2 | 3 | 5 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | 10 | <10 | <10 | 8 | 13 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | <1 | <1 | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 10260 | 10310 | 2180 | 9280 | 12360 | 9240 |
| Conductivity (Field) | uS/cm | -- | 270 | 135 | 440 | 285 | 185 | 340 |
| pH (Field) | - | 8.5 | 7.7 | 7.2 | 7.6 | 8 | 8.1 | 7.58 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 1.2 | 12.3 | 17.8 | 4.6 | 4.1 | 17.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|------------------------|-------------|-------------|-------------|-------------|-------------|
| | | | 03-Nov-2009 | 01-Jun-2010 | 13-Aug-2010 | 12-Nov-2010 | 28-Apr-2011 | 27-May-2011 |
| | | | GS-17 | SW-6 | L-1 | C-4 | A-5 | GS-17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 88000 | 206000 | 210000 | 96000 | 55000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | -- |
| Ammonia Nitrogen | mg/L | -- | 90 | <50 | <50 | <50 | <50 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <2000 | 5000 | <2000 | <2000 | <2000 | -- |
| Chemical Oxygen Demand | mg/L | -- | 50000 | 43000 | 23000 | 46000 | 45000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 30000 | 36000 | 84000 | 26000 | 16000 | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 19400 | 13600 | 8000 | 13800 | 13600 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 92000 | 63000 | 99000 | 86000 | 80000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 200 | <100 | <100 | 100 | 500 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | 10 | <10 | <10 | 10 | <10 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1000 | 1000 | 1200 | 700 | 1000 | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | 200 | <100 | <100 | 100 | 500 | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 150 | 400 | 450 | 120 | 210 | 260 |
| Sulphate | mg/L | 128-429 (BC FW) | <10000 ⁽²¹⁾ | <1000 | 7000 | 2000 | 1000 | -- |
| Total Dissolved Solids | mg/L | -- | 200000 | 330000 | 424000 | 172000 | 94000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 200 | 33 | 69 | 120 | 450 | -- |
| Barium | mg/L | -- | 27 | 33 | 79 | 26 | 33 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 30 | 240 | 200 | 40 | 20 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Calcium | mg/L | -- | 25000 | 21000 | 32000 | 22000 | 18000 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <5 | <5 | 15 | <5 | 6 | -- |
| Cobalt | mg/L | 0.0009 | <0.5 | 1.1 | 3.3 | 0.6 | 1.3 | -- |
| Copper | mg/L | 0.005 | 2 | 4 | 8 | 2 | 5 | -- |
| Iron | mg/L | 0.3 | 1600 | 2300 | 6800 | 2100 | 2400 | 3300 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.6 | 0.9 | 2.3 | 0.6 | 1.4 | -- |
| Magnesium | mg/L | -- | 8800 | 6700 | 11000 | 8200 | 5600 | -- |
| Manganese | mg/L | -- | 54 | 280 | 290 | 110 | 73 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Molybdenum | mg/L | 0.04 | <1 | <1 | <1 | <1 | <1 | -- |
| Nickel | mg/L | 0.025 | 2 | 3 | 9 | 2 | 4 | -- |
| Potassium | mg/L | -- | 2500 | 6100 | 6200 | 2000 | 1800 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 8100 | 6200 | 18000 | 9300 | 6100 | -- |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Sodium | mg/L | -- | 29000 | 110000 | 120000 | 28000 | 9000 | -- |
| Strontium | mg/L | -- | 89 | 81 | 130 | 79 | 64 | -- |
| Sulfur | mg/L | -- | 3400 | 1500 | 2500 | 2500 | 2200 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | <0.05 | 0.05 | <0.05 | <0.05 | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 55 | 120 | 440 | 70 | 110 | -- |
| Vanadium | mg/L | 0.006 | 3 | 6 | 15 | 3 | 6 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 9 | 13 | 23 | 6 | 17 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | 1 | <1 | <1 | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 10100 | 4460 | 8470 | 9670 | 8730 | -- |
| Conductivity (Field) | uS/cm | -- | 288 | 528 | 610 | 282 | 841 | -- |
| pH (Field) | - | 8.5 | 7.14 | 7.65 | 6.76 | 6.32 | 7.63 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 6.7 | 16.6 | 16.5 | 1.4 | 13.7 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 24-Aug-2011 | 07-Sep-2011 | 07-Nov-2011 | 05-Jun-2012 | 29-Aug-2012 | 22-Apr-2013 |
| | | | C-2 | GS-17 | L-2 | GS-17 | GS-17 | GS-17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 230000 | -- | 144000 | 60000 | 280000 | 48000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | -- | <20 | <0.4 | 4.4 | 1.01 |
| Ammonia Nitrogen | mg/L | -- | <50 | -- | <50 | <50 | 75 | 96 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <2000 | -- | <2000 | <2000 | <2000 | <2000 |
| Chemical Oxygen Demand | mg/L | -- | 17000 | -- | 38000 | 58000 | 17000 | 38000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 87000 | -- | 43000 | 29000 | 38000 | 18000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 5800 | -- | 9400 | 24000 | 6100 | 12000 |
| Hardness, Calcium Carbonate | mg/L | -- | 93000 | -- | 96000 | 67000 | 36000 | 56000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | -- | <100 | 1000 | <100 | 100 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | -- | <10 | 10 | <10 | <10 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 500 | -- | 700 | 1100 | 370 | 800 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | <100 | -- | <100 | 1000 | <100 | 100 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 310 | 280 | 180 | 140 | 400 | 79 |
| Sulphate | mg/L | 128-429 (BC FW) | 13000 | -- | 8000 | <1000 | 2000 | 2000 |
| Total Dissolved Solids | mg/L | -- | 468000 | -- | 266000 | 178000 | 386000 | 124000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 24 | -- | 44 | 250 | 28 | 210 |
| Barium | mg/L | -- | 31 | -- | 22 | 23 | 26 | 17 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.5 | -- | <0.5 | <0.50 | <0.50 | <0.50 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 230 | -- | 90 | 18 | 330 | 14 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | -- | <0.1 | <0.10 | <0.10 | <0.10 |
| Calcium | mg/L | -- | 29000 | -- | 26000 | 21000 | 10000 | 15000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <5 | -- | <5 | <5.0 | <5.0 | <5.0 |
| Cobalt | mg/L | 0.0009 | 0.5 | -- | <0.5 | 0.75 | 1.0 | <0.50 |
| Copper | mg/L | 0.005 | 3 | -- | 1 | 3.1 | 3.8 | 2.0 |
| Iron | mg/L | 0.3 | 1400 | -- | 1000 | 1900 | 1900 | 1000 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <0.5 | -- | <0.5 | 0.86 | 0.71 | 0.74 |
| Magnesium | mg/L | -- | 7800 | -- | 8600 | 6000 | 3700 | 4900 |
| Manganese | mg/L | -- | 38 | -- | 73 | 85 | 41 | 58 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | 0.8 | -- | <0.5 | <0.50 | 0.69 | <0.50 |
| Nickel | mg/L | 0.025 | 2 | -- | 1 | 2.1 | 3.3 | 1.7 |
| Potassium | mg/L | -- | 6500 | -- | 3100 | 1400 | 5300 | 1100 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 5900 | -- | 7200 | 7100 | 5700 | 5200 |
| Silver | mg/L | 0.0001 | <0.1 | -- | <0.1 | <0.10 | <0.10 | <0.10 |
| Sodium | mg/L | -- | 140000 | -- | 62000 | 21000 | 140000 | 13000 |
| Strontium | mg/L | -- | 120 | -- | 100 | 80 | 63 | 58 |
| Sulfur | mg/L | -- | 4200 | -- | 3000 | 2000 | 900 | 3300 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.05 | -- | <0.05 | <0.050 | <0.050 | <0.050 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 60 | -- | 25 | 54 | 100 | 50 |
| Vanadium | mg/L | 0.006 | 5.6 | -- | 1.8 | 3.5 | 6.0 | 2.4 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <5 | -- | 5 | 8.0 | 10 | 10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | -- | 3 | <1.0 | <1.0 | <1.0 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11240 | -- | 12840 | 9640 | 7050 | 14790 |
| Conductivity (Field) | uS/cm | -- | 638 | -- | 421 | 219 | 651 | 155 |
| pH (Field) | - | 8.5 | 8.30 | -- | 7.60 | 7.46 | 8.36 | 8.02 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 16.4 | -- | 5.1 | 13.7 | 15.1 | 2.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|--------------------|-----------------------------|-------------|-------------|
| | | | 06-Sep-2013 | 15-Oct-2013 | 29-Nov-2013 | 09-May-2014 ⁽²⁰⁾ | 27-Aug-2014 | 23-Sep-2014 |
| | | | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 230000 | -- | 110000 | 82000 | 240000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | <1.04 | -- | 1.51 | 0.82 | 5.79 | -- |
| Ammonia Nitrogen | mg/L | -- | <50 | -- | 140 | 62 | 130 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <2000 | -- | <2000 | <2000 | <2000 | -- |
| Chemical Oxygen Demand | mg/L | -- | 17000 | -- | 38000 | 34000 | 21000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 42000 | -- | 36000 | 33000 | 77000 | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 5800 | -- | 11000 | 13000 | 5800 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 60000 | -- | 87000 | 79000 | 92000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | <100 | -- | 150 | <200 | <100 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | -- | <10 | <20 | <10 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 500 | -- | 640 | 780 | 830 | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | <100 | -- | 150 | <200 | <100 | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 300 | 1400 | 190 | 130 | 300 | 31 |
| Sulphate | mg/L | 128-429 (BC FW) | 3000 | -- | 8000 | <1000 | 7000 | -- |
| Total Dissolved Solids | mg/L | -- | 384000 | -- | 220000 | 164000 | 404000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 14 | -- | 99 | 150 | 17 | -- |
| Barium | mg/L | -- | 31 | -- | 30 | 21 | 32 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | -- | <0.50 | <0.50 | <0.50 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 260 | -- | 49 | 24 | 200 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | -- | <0.10 | <0.10 | <0.10 | -- |
| Calcium | mg/L | -- | 19000 | -- | 28000 | 23000 | 25000 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | <5.0 | -- | <5.0 | <5.0 | <5.0 | -- |
| Cobalt | mg/L | 0.0009 | 0.95 | -- | 0.61 | <0.50 | 0.78 | -- |
| Copper | mg/L | 0.005 | 4.1 | -- | 2.1 | 2.1 | 3.6 | -- |
| Iron | mg/L | 0.3 | 1600 | -- | 1500 | 1000 | 1700 | 1100 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.80 | -- | 0.52 | <0.50 | 0.63 | -- |
| Magnesium | mg/L | -- | 6100 | -- | 8700 | 7200 | 7300 | -- |
| Manganese | mg/L | -- | 41 | -- | 96 | 96 | 37 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | <0.1 | <0.1 | -- |
| Molybdenum | mg/L | 0.04 | <0.50 | -- | <0.50 | <0.50 | 0.62 | -- |
| Nickel | mg/L | 0.025 | 2.6 | -- | 1.9 | 1.1 | 2.9 | -- |
| Potassium | mg/L | -- | 4300 | -- | 2600 | 1400 | 4000 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 6100 | -- | 9600 | 4900 | 5400 | -- |
| Silver | mg/L | 0.0001 | <0.10 | -- | <0.10 | <0.10 | <0.10 | -- |
| Sodium | mg/L | -- | 120000 | -- | 42000 | 25000 | 120000 | -- |
| Strontium | mg/L | -- | 89 | -- | 98 | 83 | 110 | -- |
| Sulfur | mg/L | -- | 1300 | -- | 3700 | 2700 | 2300 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.050 | -- | <0.050 | <0.050 | <0.050 | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 48 | -- | 53 | 32 | 84 | -- |
| Vanadium | mg/L | 0.006 | 5.3 | -- | 3.3 | 2.2 | 5.0 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 8.4 | -- | 7.1 | 5.4 | 9.6 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1.0 | -- | 1.8 | 1.0 | <1.0 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8820 | -- | -- ⁽²³⁾ | 10910 | 5900 | -- |
| Conductivity (Field) | uS/cm | -- | 583 | 605 | -- ⁽²³⁾ | 251 | 686 | -- |
| pH (Field) | - | 8.5 | 8.04 | 6.98 | 8.12 | 7.87 | 8.17 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 10.5 | 13.0 | 0.02 | 9.6 | 16.9 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 24-Nov-2014 | 08-Dec-2014 | 14-May-2015 | 17-Jun-2015 | 18-Aug-2015 | 20-Nov-2015 |
| | | | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | 17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 47000 | -- | 96000 | -- | 250000 | 100000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 1.05 | -- | <0.81 | 1.5 | <1.44 | <0.32 |
| Ammonia Nitrogen | mg/L | -- | 190 | -- | <50 | 73 | <50 | <50 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 6000 | -- | <2000 | -- | <2000 | <2000 |
| Chemical Oxygen Demand | mg/L | -- | 68000 | -- | 36000 | -- | 20000 | 50000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 14000 | -- | 32000 | -- | 100000 | 39000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 14000 | -- | 17000 | -- | 6400 | 18000 |
| Hardness, Calcium Carbonate | mg/L | -- | 46000 | -- | 86000 | -- | 120000 | 120000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 1080 | -- | <100 | -- | <100 | 310 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <10 | -- | 13 | -- | <10 | 16 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 2700 | -- | 450 | -- | 330 | 1200 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | 1080 | -- | <100 | -- | <100 | 330 |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 1100 | 38 | 110 | -- | 390 | 340 |
| Sulphate | mg/L | 128-429 (BC FW) | <1000 | -- | <1000 | -- | 8200 | 3200 |
| Total Dissolved Solids | mg/L | -- | 210000 | -- | 192000 | -- | 478000 | 272000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 90 | -- | 120 | -- | 12 | 130 |
| Barium | mg/L | -- | 85 | -- | 20 | -- | 56 | 37 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.50 | -- | <0.50 | -- | <0.50 | <0.50 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 14 | -- | 41 | -- | 230 | 25 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.10 | -- | <0.10 | -- | <0.10 | <0.10 |
| Calcium | mg/L | -- | 15000 | -- | 23000 | -- | 32000 | 30000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 22 | -- | <5.0 | -- | 10 | <5.0 |
| Cobalt | mg/L | 0.0009 | 4.0 | -- | <0.50 | -- | 2.2 | 0.65 |
| Copper | mg/L | 0.005 | 11 | -- | 1.7 | -- | 6.6 | 3.5 |
| Iron | mg/L | 0.3 | 8600 | 1300 | 1100 | -- | 4400 | 1800 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 3.4 | -- | <0.50 | -- | 1.3 | 0.61 |
| Magnesium | mg/L | -- | 7400 | -- | 6300 | -- | 9500 | 9500 |
| Manganese | mg/L | -- | 180 | -- | 38 | -- | 110 | 51 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | -- | <0.1 | -- | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <0.50 | -- | <0.50 | -- | 0.59 | <0.50 |
| Nickel | mg/L | 0.025 | 11 | -- | 1.4 | -- | 6.7 | 2.6 |
| Potassium | mg/L | -- | 9500 | -- | 1700 | -- | 5500 | 5700 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 16000 | -- | 5700 | -- | 11000 | 9100 |
| Silver | mg/L | 0.0001 | <0.10 | -- | <0.10 | -- | 0.24 | <0.10 |
| Sodium | mg/L | -- | 8300 | -- | 29000 | -- | 130000 | 29000 |
| Strontium | mg/L | -- | 62 | -- | 79 | -- | 130 | 110 |
| Sulfur | mg/L | -- | 2200 | -- | 2200 | -- | 2400 | 3600 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | 0.083 | -- | <0.050 | -- | <0.050 | <0.050 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 540 | -- | 27 | -- | 220 | 78 |
| Vanadium | mg/L | 0.006 | 17 | -- | 2.1 | -- | 9.7 | 3.7 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 37 | -- | <5.0 | -- | 15 | 7.9 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | 11 | -- | <1.0 | -- | <1.0 | <1.0 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 12760 | -- | 11010 | 10810 | 10840 | 12010 |
| Conductivity (Field) | uS/cm | -- | 151 | -- | 304 | 296 | 312 | 449 |
| pH (Field) | - | 8.5 | 7.69 | -- | 7.94 | 7.89 | 7.91 | 7.69 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 3.9 | -- | 10.3 | 14.9 | 18.9 | 5.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|---------------|---------------|-------------|---------------|---------------|---------------|
| | | | 15-Jun-2016 | 22-Aug-2016 | 13-Oct-2016 | 01-May-2017 | 20-Sep-2017 | 6-Nov-2017 |
| | | | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 216 | 185 | 281 | 44 | 226 | 86 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.003 | 0.001 | 0.001 | 0.001 | 0.002 | 0.0004 |
| Ammonia Nitrogen | mg/L | -- | 0.16 | 0.15 | 0.02 | 0.26 | 0.05 | 0.04 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 6 | < 3 | < 3 | < 3 | 4 | < 3 |
| Chemical Oxygen Demand | mg/L | -- | 121 | 29 | 24 | 57 | 26 | 90 |
| Chloride | mg/L | 120-640 (CWQG FW) | 40.7 | 105 | 76.6 | 10.1 | 56.6 | 13 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | 621 | 714 | 748 | 172 | 635 | 204 |
| Dissolved Organic Carbon | mg/L | -- | 8.8 | 8.3 | 6.8 | 12.5 | 7.9 | 23.6 |
| Hardness, Calcium Carbonate | mg/L | -- | 121 | 111 | 70 | 75 | 95 | 61 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 0.2 | 0.1 | < 0.1 | 0.58 | < 0.1 | 0.1 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.1 | < 0.1 | < 0.1 | < 0.05 | < 0.1 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1.02 | 1.3 | 0.59 | 1.61 | 0.6 | 1.1 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.5 | 0.52 | 0.35 | 0.59 | 0.26 | 0.25 |
| Sulphate | mg/L | 128-429 (BC FW) | 35 | 22 | 5 | 5 | 5 | 7 |
| Total Dissolved Solids | mg/L | -- | -- | -- | -- | 88.3 | 342 | 110 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | 7.09 | 0.95 | 0.82 | 5.3 | 2.12 | 1.85 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.01 | 0.07 | 0.02 | 0.1 | 0.03 | 0.25 |
| Barium | mg/L | -- | 0.104 | 0.052 | 0.029 | 0.065 | 0.05 | 0.031 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.145 | 0.139 | 0.24 | 0.013 | 0.214 | 0.008 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.00013 | 0.00004 | 0.00005 | 0.000116 | 0.000065 | 0.000075 |
| Calcium | mg/L | -- | 38.2 | 31.9 | 18.2 | 18 | 29.8 | 16.2 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.023 | 0.002 | 0.002 | 0.012 | 0.006 | 0.004 |
| Cobalt | mg/L | 0.0009 | 0.0049 | 0.001 | 0.0008 | 0.0025 | 0.0014 | 0.0008 |
| Copper | mg/L | 0.005 | 0.0162 | 0.0053 | 0.0027 | 0.009 | 0.0136 | 0.0063 |
| Iron | mg/L | 0.3 | 11.6 | 1.5 | 1.54 | 6.83 | 2.86 | 2.15 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00377 | 0.00124 | 0.00065 | 0.00278 | 0.00132 | 0.00135 |
| Magnesium | mg/L | -- | 18.1 | 7.63 | 5.96 | 7.19 | 9.26 | 4.98 |
| Manganese | mg/L | -- | 0.749 | 0.152 | 0.155 | 0.133 | 0.088 | 0.05 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0005 | 0.0005 | 0.0003 | 0.0005 | 0.0006 | 0.0003 |
| Nickel | mg/L | 0.025 | 0.0135 | 0.0032 | 0.002 | 0.0078 | 0.0065 | 0.0041 |
| Potassium | mg/L | -- | 5.3 | 9.5 | 5.3 | 4.2 | 4.4 | 2.8 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 15.8 | 5.73 | 4.45 | 11.3 | 8.68 | 6.53 |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.00002 | < 0.00002 | 0.00002 | < 0.00002 | 0.00002 |
| Sodium | mg/L | -- | 77.7 | 101 | 132 | 10.3 | 108 | 13.4 |
| Strontium | mg/L | -- | 0.147 | 0.145 | 0.087 | 0.087 | 0.148 | 0.061 |
| Sulfur | mg/L | -- | 11.3 | 7.4 | 1.8 | 1.8 | 1.8 | 2.4 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | 0.00009 | < 0.00005 | < 0.00005 | 0.00006 | < 0.00005 | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.473 | 0.027 | 0.034 | 0.338 | 0.121 | 0.091 |
| Vanadium | mg/L | 0.006 | 0.0162 | 0.0059 | 0.0032 | 0.0099 | 0.006 | 0.0034 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.038 | 0.008 | < 0.005 | 0.06 | 0.041 | 0.021 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | 0.002 | < 0.001 | < 0.001 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 4.88 | 6.12 | 7.02 | 9.97 | 6.95 | 6.88 |
| Conductivity (Field) | uS/cm | -- | 563 | 747 | 736 | 143 | 554 | 167 |
| pH (Field) | - | 8.5 | 7.8 | 7.3 | 8.1 | 7.2 | 8.0 | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 13.6 | 18.1 | 9.4 | 6.9 | 16.8 | 9.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 | |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|--------------|-----------|-----------|-----------|-----|
| | | | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 24-Apr-19 | 24-Sep-19 | 31-Oct-19 | |
| | | | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | |
| General Chemistry | | | | | | | DRY | DRY | DRY |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 66 | 220 | 98 | -- | -- | -- | |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0003 | 0.0007 | 0.0002 | -- | -- | -- | |
| Ammonia Nitrogen | mg/L | -- | 0.03 | 0.03 | 0.05 | -- | -- | -- | |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | < 3 | < 3 | 6 | -- | -- | -- | |
| Chemical Oxygen Demand | mg/L | -- | 82 | 24 | 44 | -- | -- | -- | |
| Chloride | mg/L | 120-640 (CWQG FW) | 27.2 | 147 | 66.8 | -- | -- | -- | |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- | |
| Conductivity | umho/cm | -- | 259 | 877 | 456 | -- | -- | -- | |
| Dissolved Organic Carbon | mg/L | -- | 13.9 | 5.6 | 13.6 | -- | -- | -- | |
| Hardness, Calcium Carbonate | mg/L | -- | 95 | 130 | 136 | -- | -- | -- | |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 0.05 | 0.06 | 0.6 | -- | -- | -- | |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.05 | < 0.05 | < 0.05 | -- | -- | -- | |
| Nitrogen, Total Kjeldahl | mg/L | -- | 0.7 | 0.5 | 0.7 | -- | -- | -- | |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- | -- | -- | -- | |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- | |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.19 | 0.23 | 0.18 | -- | -- | -- | |
| Sulphate | mg/L | 128-429 (BC FW) | 6 | 3.6 | 5.2 | -- | -- | -- | |
| Total Dissolved Solids | mg/L | -- | 127 | 477 | 232 | -- | -- | -- | |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- | |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- | |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | |
| Metals | | | | | | | | | |
| Aluminum | mg/L | 0.075 | 1.24 | 1.54 | 0.58 | -- | -- | -- | |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.14 | 0.03 | 0.12 | -- | -- | -- | |
| Barium | mg/L | -- | 0.037 | 0.042 | 0.038 | -- | -- | -- | |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | < 0.001 | -- | -- | -- | |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.013 | 0.185 | 0.013 | -- | -- | -- | |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.000045 | 0.000025 | 0.000027 | -- | -- | -- | |
| Calcium | mg/L | -- | 24.9 | 34 | 36 | -- | -- | -- | |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.004 | 0.006 | 0.003 | -- | -- | -- | |
| Cobalt | mg/L | 0.0009 | 0.0008 | 0.0012 | 0.0004 | -- | -- | -- | |
| Copper | mg/L | 0.005 | 0.0033 | 0.004 | 0.007 | -- | -- | -- | |
| Iron | mg/L | 0.3 | 1.46 | 2.14 | 0.983 | -- | -- | -- | |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00083 | 0.00078 | 0.00047 | -- | -- | -- | |
| Magnesium | mg/L | -- | 7.89 | 8.82 | 11.2 | -- | -- | -- | |
| Manganese | mg/L | -- | 0.068 | 0.053 | 0.038 | -- | -- | -- | |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | < 0.00002 | -- | -- | -- | |
| Molybdenum | mg/L | 0.04 | <0.0001 | 0.0007 | 0.0003 | -- | -- | -- | |
| Nickel | mg/L | 0.025 | 0.0027 | 0.0038 | 0.0021 | -- | -- | -- | |
| Potassium | mg/L | -- | 2.2 | 4.3 | 2.4 | -- | -- | -- | |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | |
| Silicon | mg/L | -- | 5.01 | 6.33 | 6.18 | -- | -- | -- | |
| Silver | mg/L | 0.0001 | 0.00002 | <0.00001 | <0.00001 | -- | -- | -- | |
| Sodium | mg/L | -- | 18.1 | 139 | 39 | -- | -- | -- | |
| Strontium | mg/L | -- | 0.116 | 0.14 | 0.166 | -- | -- | -- | |
| Sulfur | mg/L | -- | 2 | 10 | 17 | -- | -- | -- | |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.000022 | < 0.00005 | < 0.00005 | -- | -- | -- | |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- | |
| Titanium | mg/L | -- | 0.049 | 0.095 | 0.03 | -- | -- | -- | |
| Vanadium | mg/L | 0.006 | 0.0039 | 0.0074 | 0.0018 | -- | -- | -- | |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.042 | 0.019 | 0.01 | -- | -- | -- | |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | 0.002 | 0.002 | -- | -- | -- | |
| Field Measurements | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7.15 | 7.85 | 11.9 | -- | -- | -- | |
| Conductivity (Field) | uS/cm | -- | 202 | 663 | 375 | -- | -- | -- | |
| pH (Field) | - | 8.5 | 7.6 | 7.7 | 7.4 | -- | -- | -- | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 9.2 | 19.6 | 3.6 | -- | -- | -- | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 | GS17 |
|----------------------------------|-------------------|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|--------------|-------------|
| | | | 25-May-20 | 29-Jul-20 | 03-Nov-20 | 25-May-21 | 16-Aug-21 | 11-Nov-21 | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 | GS-17 |
| | | | DRY | DRY | DRY | | | | | | |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | -- | -- | -- | 135 | 155 | 149 | 79 | 207 | 129 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | 0.0017 | 0.0017 | 0.0013 | 0.0004 | 0.0005 | 0.0006 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | 0.04 | 0.05 | 0.04 | 0.04 | 0.05 | 0.05 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | < 3 | <3 | <3 | -- | < 3 | < 3 |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | 31 | 27 | 25 | 45 | 27 | 69 |
| Chloride | mg/L | 120-640 (CWQG FW) | -- | -- | -- | 91.7 | 170 | 136 | 20.5 | 197 | 47.7 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- | 255 | 1091 | 446 |
| Dissolved Organic Carbon | mg/L | -- | -- | -- | -- | 8.4 | 5.3 | 4.4 | 23.3 | 5.7 | 7.4 |
| Hardness, Calcium Carbonate | mg/L | -- | -- | -- | -- | 162 | 182 | 203 | 102 | 269 | 156 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | 0.1 | <0.05 | 0.27 | 1.3 | < 0.05 | 0.43 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | <0.05 | <0.05 | <0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | 0.6 | 0.9 | 0.5 | 0.8 | 1.5 | 0.5 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | 0.08 | 0.13 | 0.06 | 0.15 | 0.14 | 0.05 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | 10 | 29 | 20 | 4.5 | 27 | 6 |
| Total Dissolved Solids | mg/L | -- | -- | -- | -- | 296 | 466 | 406 | 130 | 581 | 230 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | 0.3 | 0.98 | 0.39 | 0.24 | 0.53 | 0.03 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | 0.03 | 0.02 | 0.03 | -- | 0.05 | 0.37 |
| Barium | mg/L | -- | -- | -- | -- | 0.026 | 0.042 | 0.036 | 0.025 | 0.036 | 0.033 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | 0.015 | 0.027 | 0.029 | 0.007 | 0.021 | 0.013 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | 0.000016 | <0.000015 | <0.000015 | 0.00002 | < 0.000015 | < 0.000015 |
| Calcium | mg/L | -- | -- | -- | -- | 44.6 | 54.9 | 55.1 | 28.1 | 76 | 42.1 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | 0.001 | 0.002 | 0.001 | 0.001 | 0.004 | 0.002 |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | 0.0004 | 0.0006 | 0.0004 | 0.0003 | 0.0004 | 0.0004 |
| Copper | mg/L | 0.005 | -- | -- | -- | 0.0022 | 0.0034 | 0.0015 | 0.0013 | 0.0019 | 0.0019 |
| Iron | mg/L | 0.3 | -- | -- | -- | 0.583 | 1.38 | 0.709 | 1.22 | 1.01 | 0.72 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | 0.00012 | 0.00031 | 0.00013 | 0.00029 | 0.00018 | 0.00023 |
| Magnesium | mg/L | -- | -- | -- | -- | 12.4 | 11.4 | 15.8 | 7.72 | 19.3 | 12.4 |
| Manganese | mg/L | -- | -- | -- | -- | 0.058 | 0.06 | 0.044 | 0.046 | 0.104 | 0.036 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | 0.0003 | 0.0005 | 0.0003 | 0.0002 | 0.0004 | 0.0002 |
| Nickel | mg/L | 0.025 | -- | -- | -- | 0.0015 | 0.0022 | 0.0011 | 0.0014 | 0.002 | 0.0016 |
| Potassium | mg/L | -- | -- | -- | -- | 2.3 | 5.9 | 3.5 | 1.4 | 4.6 | 3 |
| Selenium | mg/L | 0.1 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | 3.79 | 5.13 | 6.21 | 5.52 | 3.2 | 7.29 |
| Silver | mg/L | 0.0001 | -- | -- | -- | < 0.0001 | < 0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium | mg/L | -- | -- | -- | -- | 50.5 | 100 | 74.7 | 11.8 | 123 | 27.3 |
| Strontium | mg/L | -- | -- | -- | -- | 0.147 | 0.195 | 0.201 | 0.099 | 0.266 | 0.153 |
| Sulfur | mg/L | -- | -- | -- | -- | 3.6 | 10.2 | 7.1 | 4.5 | 8.5 | 6 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | < 0.00005 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | 0.018 | 0.06 | 0.021 | 0.007 | 0.034 | 0.02 |
| Vanadium | mg/L | 0.006 | -- | -- | -- | 0.0014 | 0.003 | 0.0013 | 0.0014 | 0.0025 | 0.0019 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | 0.022 | 0.013 | 0.016 | < 0.005 | 0.007 | 0.011 |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | < 0.002 | < 0.002 | <0.002 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | -- | -- | 6.8 | 9.3 | 9.5 | 10.3 | 7.5 | 7.5 |
| Conductivity (Field) | uS/cm | -- | -- | -- | -- | 547 | 990 | 799 | 260 | 540 | 370 |
| pH (Field) | - | 8.5 | -- | -- | -- | 8.06 | 7.98 | 8.4 | 7.4 | 7.36 | 7.77 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | -- | -- | -- | 16.9 | 16.5 | 3.2 | 17.8 | 19.4 | 9.3 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2016+) | (2) (1) PWQO | GS17 | GS17 | GS17 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|--------------|
| | | | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | GS-17 | GS-17 | GS-17 |
| | | | | | DRY |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 55 | 118 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | 0.0011 | -- |
| Ammonia Nitrogen | mg/L | -- | < 0.01 | 0.08 | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | < 3 | <3 | -- |
| Chemical Oxygen Demand | mg/L | -- | 41 | 57 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 22.2 | 84.1 | -- |
| Color | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 23.8 | 27.0 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 66 | 126 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 1.15 | 0.05 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.05 | <0.05 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 0.7 | 0.8 | -- |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.06 | 0.09 | -- |
| Sulphate | mg/L | 128-429 (BC FW) | 10 | 7 | -- |
| Total Dissolved Solids | mg/L | -- | 97 | 254 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁸⁾ | -- | -- | -- |
| Metals | | | | | |
| Aluminum | mg/L | 0.075 | 0.85 | 0.87 | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.23 | 0.12 | -- |
| Barium | mg/L | -- | 0.020 | 0.030 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | <0.0001 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.007 | 0.013 | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.000035 | 0.000028 | -- |
| Calcium | mg/L | -- | 16.6 | 34.9 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.003 | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.0007 | 0.0005 | -- |
| Copper | mg/L | 0.005 | 0.0027 | 0.0029 | -- |
| Iron | mg/L | 0.3 | 1.03 | 1.62 | -- |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00076 | 0.00035 | -- |
| Magnesium | mg/L | -- | 5.05 | 9.40 | -- |
| Manganese | mg/L | -- | 0.063 | 0.034 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | -- |
| Molybdenum | mg/L | 0.04 | 0.0002 | -- | -- |
| Nickel | mg/L | 0.025 | 0.0023 | 0.0030 | -- |
| Potassium | mg/L | -- | 1.2 | 1.6 | -- |
| Selenium | mg/L | 0.1 | -- | -- | -- |
| Silicon | mg/L | -- | 4.43 | 7.13 | -- |
| Silver | mg/L | 0.0001 | < 0.0001 | <0.0001 | -- |
| Sodium | mg/L | -- | 11.6 | 47.2 | -- |
| Strontium | mg/L | -- | 0.067 | 0.125 | -- |
| Sulfur | mg/L | -- | 2.5 | 2.94 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | 0.00006 | -- |
| Tin | mg/L | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.039 | 0.048 | -- |
| Vanadium | mg/L | 0.006 | 0.0022 | 0.0027 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | < 0.005 | 0.005 | -- |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | <0.001 | -- |
| Field Measurements | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8.8 | 14.6 | -- |
| Conductivity (Field) | uS/cm | -- | 260 | 429 | -- |
| pH (Field) | - | 8.5 | 7.33 | 7.77 | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 9.0 | 10.7 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|----------------------------|-------------|--------------------|----------------------------|
| | | | 04-Jun-1994 | 07-Sep-1994 | 24-Nov-1994 ⁽⁴⁾ | 28-May-1995 | 11-Sep-1995 | 07-Nov-1995 ⁽⁴⁾ |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 118000 | 98000 | -- | 122000 | 93000 | -- |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 28000 | 15000 | -- | 21000 | 18000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 44000 | 38000 | -- | 36000 | 28000 | -- |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 10000 | 6600 | -- | 9800 | 6900 | -- |
| Hardness, Calcium Carbonate | mg/L | -- | 152000 | 142000 | -- | 143000 | 137000 | -- |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 6.4 | 7.3 | -- | 7 | 7.8 | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 250000 | 260000 | -- | 260000 | 228000 | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | -- | -- | -- | 2480 | 3780 | -- |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | -- | -- | -- | 430 | 240 | -- |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 38000 | 22000 | -- | 34000 | 26000 | -- |
| Strontium | mg/L | -- | 160 | 150 | -- | 160 | 165 | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁸⁾ | 11200 | 10400 | -- | 9200 | -- ⁽²³⁾ | -- |
| Conductivity (Field) | uS/cm | -- | 420 | 410 | -- | 410 | 360 | -- |
| pH (Field) | - | 8.5 | 6.4 | 7.3 | -- | 7 | 7.8 | -- |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 11.5 | 10 | -- | 13.5 | 11 | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|--------------------|-------------|
| | | | 17-Jul-1996 | 22-Nov-1996 | 10-Jun-1997 | 09-Sep-1997 | 09-Jun-1998 | 20-Aug-1998 |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 85000 | 98000 | 101000 | 118000 | 102000 | 143000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | -- | -- |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 31000 | 21000 | 37000 | 46000 | 3000 | 38000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 46000 | 38000 | 25000 | 37000 | 33000 | 42000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 13000 | 7200 | 8000 | 18200 | 9800 | 14000 |
| Hardness, Calcium Carbonate | mg/L | -- | 100000 | 129000 | 103000 | 135000 | 114000 | 142000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 6 | 6.2 | 7.5 | 6.4 | 8.03 | 7.5 |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | -- | -- | -- | -- | -- |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 252000 | 244000 | 192000 | 244000 | 220000 | 252000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | -- | -- |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | 23000 | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 710 | 1300 | 2770 | 1430 | 1950 | 1060 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | 11000 | -- | -- | -- |
| Manganese | mg/L | -- | 90 | 70 | 270 | 640 | 160 | 560 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 38000 | 34000 | 24000 | 31000 | 23000 | 30000 |
| Strontium | mg/L | -- | 137 | 133 | 124 | 142 | 134 | 157 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8400 | 11800 | 11700 | 6300 | -- ⁽²²⁾ | 6300 |
| Conductivity (Field) | uS/cm | -- | 360 | 240 | 220 | 310 | 230 | 410 |
| pH (Field) | - | 8.5 | 6 | 6.2 | 7.5 | 6.4 | 8.03 | 7.5 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 22 | 1 | 20 | 17 | 27 | 16 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 25-May-1999 | 31-Aug-1999 | 01-Jun-2000 | 18-Aug-2000 | 29-May-2007 | 23-Aug-2007 |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 111000 | 116000 | 109000 | 131000 | 119000 | 144000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | -- | -- | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | -- | -- | -- | -- | 90 | 180 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | 1000 | 3000 |
| Chemical Oxygen Demand | mg/L | -- | 29000 | 30000 | 25000 | 15000 | 20000 | 25000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 33000 | 26000 | 24000 | 32000 | 43000 | 52000 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9600 | 7900 | 9500 | 7000 | 11400 | 12000 |
| Hardness, Calcium Carbonate | mg/L | -- | 112000 | 140000 | 116000 | 132000 | 139000 | 177000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | 1590 | 390 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | 1420 | 970 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | 8.15 | 6.25 | 6.7 | 7.7 | 8.4 | 7.4 |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | -- | -- | -- | -- | 120 | 160 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 23000 | 30000 |
| Total Dissolved Solids | mg/L | -- | 216000 | 208000 | 188000 | 292000 | 276000 | 332000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | 50 | 50 |
| Barium | mg/L | -- | -- | -- | -- | -- | 30 | 40 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | 70 | 150 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | <0.1 | <0.1 |
| Calcium | mg/L | -- | -- | -- | 25000 | 28000 | 31000 | 43000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | 2 | 3 |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | 0.8 | 0.7 |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | 3 | 3 |
| Iron | mg/L | 0.3 | 1210 | 3090 | 510 | 1020 | 1140 | 1000 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | <1 | <1 |
| Magnesium | mg/L | -- | -- | -- | 13000 | 15000 | 15000 | 17000 |
| Manganese | mg/L | -- | 120 | 550 | 140 | 60 | 180 | 240 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | <5 | <5 |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | <5 | <5 |
| Potassium | mg/L | -- | -- | -- | -- | -- | 4000 | 5000 |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | 2900 | 5300 |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | <0.1 | <0.1 |
| Sodium | mg/L | -- | -- | 20000 | 25000 | 32000 | 36000 | 36000 |
| Strontium | mg/L | -- | 126 | 160 | 321 | 137 | 136 | 180 |
| Sulfur | mg/L | -- | -- | -- | -- | -- | 7700 | 10000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | 0.5 | <0.1 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | 20 | 20 |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | 3 | 4 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | <10 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 12100 | 6200 | 6900 | 6700 | 7730 | 5800 |
| Conductivity (Field) | uS/cm | -- | 270 | 260 | 210 | 387 | 270 | 700 |
| pH (Field) | - | 8.5 | 8.15 | 6.25 | 6.7 | 7.7 | 8.4 | 7.4 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 14 | 12 | 10 | 16.4 | 23.6 | 15.6 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 25-Nov-2007 | 01-May-2008 | 11-Aug-2008 | 04-Nov-2008 | 09-Apr-2009 | 01-May-2017 |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 124000 | 92000 | 124000 | 117000 | 96000 | 58 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | <20 | <20 | 0.0004 |
| Ammonia Nitrogen | mg/L | -- | 40 | 40 | 60 | 70 | <50 | 0.07 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | <1000 | <1000 | <1000 | <2000 | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | 7000 | 18000 | 23000 | 18000 | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 71000 | 36000 | 42000 | 46000 | 39000 | 14.7 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | 225 |
| Dissolved Organic Carbon | mg/L | -- | 7200 | 8000 | 8700 | 8000 | 7900 | 10.9 |
| Hardness, Calcium Carbonate | mg/L | -- | 150000 | 108000 | 133000 | 128000 | 110000 | 91 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 2150 | 2860 | 4650 | 3500 | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | <100 | <100 | <100 | <10 | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 730 | 1000 | 520 | 900 | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | 3500 | -- |
| Nitrogen, Organic | mg/L | -- | 7.4 | 6.9 | 8.2 | 7.8 | 7.9 | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 110 | 50 | 90 | 110 | 47 | 0.22 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 22000 | 25000 | 29000 | 25000 | -- |
| Total Dissolved Solids | mg/L | -- | 378000 | 239000 | 293000 | 307000 | 242000 | 117 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | 130 | 70 | 40 | 42 | -- |
| Barium | mg/L | -- | -- | 30 | 40 | 40 | 40 | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | <1 | <1 | <1 | <0.5 | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 50 | 80 | 90 | 80 | 70 | 0.034 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Calcium | mg/L | -- | 32000 | 25000 | 32000 | 28000 | 26000 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | 3 | 3 | 2 | <5 | -- |
| Cobalt | mg/L | 0.0009 | -- | 0.4 | 0.6 | 0.5 | 0.6 | -- |
| Copper | mg/L | 0.005 | -- | 3 | 3 | 3 | 3 | -- |
| Iron | mg/L | 0.3 | 830 | 510 | 1020 | 550 | 900 | 7.17 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | <1 | <1 | <1 | <0.5 | -- |
| Magnesium | mg/L | -- | 17000 | 11000 | 13000 | 14000 | 12000 | -- |
| Manganese | mg/L | -- | 80 | 50 | 80 | 30 | 31 | 0.116 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Molybdenum | mg/L | 0.04 | -- | <5 | <5 | <5 | <1 | -- |
| Nickel | mg/L | 0.025 | -- | <5 | <5 | <5 | 3 | -- |
| Potassium | mg/L | -- | -- | 3000 | 4000 | 4000 | 4100 | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 4400 | 5500 | 5800 | 5400 | -- |
| Silver | mg/L | 0.0001 | -- | <0.1 | <0.1 | <0.1 | <0.1 | -- |
| Sodium | mg/L | -- | 43000 | 27000 | 34000 | 34000 | 32000 | 17.3 |
| Strontium | mg/L | -- | -- | 116 | 170 | 135 | 130 | -- |
| Sulfur | mg/L | -- | -- | 7000 | 8000 | 10000 | 7500 | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | <0.1 | <0.1 | <0.1 | <0.05 | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 30 | 20 | 10 | 58 | -- |
| Vanadium | mg/L | 0.006 | -- | 2 | 4 | 2 | 4 | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | <10 | <10 | <10 | 10 | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | <1 | <1 | <1 | <1 | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁸⁾ | 5050 | 10670 | 6520 | 6520 | 11610 | 8.95 |
| Conductivity (Field) | uS/cm | -- | 600 | 280 | 410 | 430 | 400 | 2021 |
| pH (Field) | - | 8.5 | 7.4 | 6.9 | 8.2 | 7.8 | 7.9 | 7.5 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 0.5 | 4.4 | 17 | 9.3 | 7.8 | 7.5 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|-------------------------|-----------------------------|--------------|--------------|-------------|-------------|-------------|-------------|
| | | | 20-Sep-2017 | 06-Nov-2017 | 30-Apr-2018 | 20-Aug-2018 | 05-Nov-2018 | 24-Sep-19 |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 119 | 81 | 93 | 92 | 116 | 131 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0012 | 0.0006 | 0.0003 | 0.0072 | 0.0007 | 0.0034 |
| Ammonia Nitrogen | mg/L | -- | 0.05 | 0.05 | 0.04 | 0.09 | 0.05 | 0.07 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 4 | < 3 | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | 24 | 56 | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 30.1 | 22.9 | 44.6 | 36.1 | 46.5 | 48.8 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | 436 | 294 | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9.4 | 13.3 | 10.1 | 7.3 | 8.4 | 27 |
| Hardness, Calcium Carbonate | mg/L | -- | 148 | 104 | 116 | 128 | 143 | 146 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 2.3 | 4.3 | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | 0.2 | < 0.05 | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1 | 0.9 | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.13 | 0.1 | 0.13 | 0.23 | 0.08 | 0.15 |
| Sulphate | mg/L | 128-429 (BC FW) | 20 | 15 | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 226 | 151 | -- | 203 | 235 | 251 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | 2.26 | 2.26 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | 0.06 | -- | -- | -- | -- |
| Barium | mg/L | -- | 0.063 | 0.05 | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.002 | < 0.002 | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.135 | 0.06 | 0.052 | 0.085 | 0.059 | 0.381 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.00006 | 0.000052 | -- | -- | -- | -- |
| Calcium | mg/L | -- | 38.7 | 24.5 | -- | -- | 32.1 | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.006 | < 0.001 | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.0016 | 0.0003 | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | 0.0117 | 0.0049 | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 3.13 | 2.61 | 1.89 | 5.75 | 1.04 | 5.43 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00122 | 0.00029 | -- | -- | -- | -- |
| Magnesium | mg/L | -- | 16.8 | 10.7 | -- | -- | 15.3 | -- |
| Manganese | mg/L | -- | 0.175 | 0.051 | 0.048 | 0.18 | 0.032 | 0.294 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | < 0.00002 | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | 0.0004 | 0.0003 | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | 0.0073 | 0.0042 | -- | -- | -- | -- |
| Potassium | mg/L | -- | 4.8 | 4 | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 8.21 | 8.1 | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | < 0.00002 | < 0.00002 | -- | -- | -- | -- |
| Sodium | mg/L | -- | 34.6 | 23.2 | -- | 30 | 36.4 | 45.7 |
| Strontium | mg/L | -- | 0.22 | 0.11 | -- | -- | -- | -- |
| Sulfur | mg/L | -- | 7.2 | 5.3 | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | < 0.00005 | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.145 | 0.127 | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | 0.0059 | 0.0004 | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.044 | 0.127 | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | < 0.001 | < 0.001 | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8.8 | 6.28 | 7.46 | 6.28 | 9.5 | 8.5 |
| Conductivity (Field) | uS/cm | -- | 373 | 287 | 324 | 310 | 371 | 512 |
| pH (Field) | - | 8.5 | 7.7 | 7.7 | 7.6 | 8.1 | 7.9 | 8.12 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 20.5 | 10.7 | 9.5 | 24.8 | 6.4 | 16.8 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | | GS20 | | GS20 | |
|----------------------------------|----------------------|-----------------------------|-----------|------|-----------|------------|-----------|---------|
| | | | 24-Sep-19 | | 31-Oct-19 | 25-May-20 | 25-May-20 | |
| | | | Dup GS 22 | RDP | GS-20 | GS-20 | Dup GS 23 | RDP |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 94 | 33% | 105 | 133 | 136 | 2.23% |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | 0.0003 | 0.0004 | -- | 0.00% |
| Ammonia Nitrogen | mg/L | -- | 0.04 | 55% | 0.04 | 0.06 | 0.04 | 40.00% |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | < 3 | < 3 | 0.00% |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | 28 | 30 | 6.90% |
| Chloride | mg/L | 120-640 (CWQG FW) | 29.9 | 48% | 62.2 | 48.5 | 48 | 1.04% |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 6.5 | 122% | 8.5 | 9.6 | 9.3 | 3.17% |
| Hardness, Calcium Carbonate | mg/L | -- | 117 | 22% | 163 | 156 | 158 | 1.27% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | 1.79 | 1.78 | 0.56% |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | 0.07 | 0.07 | 0.00% |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | 0.8 | 0.8 | 0.00% |
| Nitrogen, Nitrate-Nitrite | | | | | | | | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.100 | 40% | 0.120 | 0.040 | 0.040 | 0.00% |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | 19 | 19 | 0.00% |
| Total Dissolved Solids | mg/L | -- | 188 | 29% | 273 | 247 | 250 | 1.21% |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | 0.35 | 0.31 | 12.12% |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | 0.25 | 0.25 | 0.00% |
| Barium | mg/L | -- | -- | -- | -- | 0.031 | 0.03 | 3.28% |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | < 0.0001 | < 0.0001 | 0.00% |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.059 | 146% | 0.096 | 0.129 | 0.124 | 3.95% |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | < 0.000015 | 0.000018 | 18.18% |
| Calcium | mg/L | -- | -- | -- | 37.3 | 34.5 | 33.5 | 2.94% |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | 0.001 | 0.001 | 0.00% |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | 0.0005 | 0.0005 | 0.00% |
| Copper | mg/L | 0.005 | -- | -- | -- | 0.0027 | 0.0027 | 0.00% |
| Iron | mg/L | 0.3 | 1.83 | 99% | 2.5 | 0.653 | 0.621 | 5.02% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | 0.00014 | 0.00015 | 6.90% |
| Magnesium | mg/L | -- | -- | -- | 16.9 | 15.5 | 15.1 | 2.61% |
| Manganese | mg/L | -- | 0.037 | 155% | 0.081 | 0.1 | 0.072 | 32.56% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | < 0.00002 | < 0.00002 | 0.00% |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | 0.0003 | 0.0003 | 0.00% |
| Nickel | mg/L | 0.025 | -- | -- | -- | 0.0032 | 0.0032 | 0.00% |
| Potassium | mg/L | -- | -- | -- | -- | 3.9 | 3.7 | 5.26% |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | 2.22 | 2.08 | 6.51% |
| Silver | mg/L | 0.0001 | -- | -- | -- | < 0.0001 | < 0.0001 | 0.00% |
| Sodium | mg/L | -- | 29.9 | 42% | 44.4 | 41.2 | 40.1 | 2.71% |
| Strontium | mg/L | -- | -- | -- | -- | 0.168 | 0.164 | 2.41% |
| Sulfur | mg/L | -- | -- | -- | -- | 6.8 | 6.5 | 4.51% |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | < 0.00005 | < 0.00005 | 0.00% |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | 0.021 | 0.019 | 10.00% |
| Vanadium | mg/L | 0.006 | -- | -- | -- | 0.0016 | 0.0017 | 6.06% |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | 0.087 | < 0.005 | 178.26% |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | < 0.002 | < 0.002 | 0.00% |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁸⁾ | -- | -- | 11 | 8.9 | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | -- | 515 | 512 | -- | -- |
| pH (Field) | - | 8.5 | -- | -- | 7.5 | 7.1 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | -- | -- | 11.0 | 20.2 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 | GS20 |
|----------------------------------|-------------------------|-----------------------------|-----------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|
| | | | 29-Jul-20 | 03-Nov-20 | 25-May-21 | 16-Aug-21 | 11-Nov-21 | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 121 | 149 | 127 | 136 | 125 | 126 | 157 | 124 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0013 | 0.0007 | 0.0184 | 0.0015 | 0.0002 | 0.0010 | 0.0004 | 0.0001 |
| Ammonia Nitrogen | mg/L | -- | 0.05 | 0.1 | 0.06 | 0.04 | 0.03 | 0.04 | 0.04 | 0.04 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | | | < 3 | <3 | <3 | -- | < 3 | < 3 |
| Chemical Oxygen Demand | mg/L | -- | | | 23 | 17 | 25 | 25 | 27 | 30 |
| Chloride | mg/L | 120-640 (CWQG FW) | 58.4 | 95.8 | 48.1 | 48 | 53.8 | 47.1 | 46.7 | 53.6 |
| Color | color unit | -- | | | | | | | | |
| Conductivity | umho/cm | -- | | | | | | | 494 | 505 |
| Dissolved Organic Carbon | mg/L | -- | 12.8 | 8.1 | 7.2 | 8.4 | 6.7 | 11.6 | 15.3 | 5.7 |
| Hardness, Calcium Carbonate | mg/L | -- | 183 | 184 | 136 | 153 | 161 | 137 | 144 | 156 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | | | 2.16 | 1.59 | 4.78 | 3.05 | 0.51 | 2.25 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | | | < 0.05 | <0.05 | <0.05 | < 0.05 | < 0.05 | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | | | 0.8 | 0.7 | 0.8 | 0.8 | 1 | 0.7 |
| Nitrogen, Nitrate-Nitrite | | | | | | | | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | | | | | | -- | -- | -- |
| Phosphorus | mg/L | 0.010-0.030 ⁽⁷⁾ | 0.1 | 0.45 | 0.06 | 0.05 | 0.05 | 0.05 | 0.09 | 0.06 |
| Sulphate | mg/L | 128-429 (BC FW) | | | 25 | 30 | 34 | 7.6 | 14 | 28 |
| Total Dissolved Solids | mg/L | -- | 267 | 342 | 240 | 251 | 270 | 228 | 257 | 263 |
| Total Organic Carbon | mg/L | -- | | | | | | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | | | | | | -- | -- | -- |
| Turbidity | ntu | -- | | | | | | -- | -- | -- |
| Metals | | | | | | | | | | |
| Aluminum | mg/L | 0.075 | | | 0.56 | 0.37 | 0.47 | 0.28 | 0.35 | 0.98 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | | | 0.03 | 0.01 | 0.03 | -- | 0.04 | 0.03 |
| Barium | mg/L | -- | | | 0.026 | 0.03 | 0.033 | 0.03 | 0.026 | 0.046 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | | | <0.0001 | <0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.23 | 0.11 | 0.099 | 0.124 | 0.069 | 0.074 | 0.154 | 0.14 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | | | 0.000018 | <0.000015 | <0.000015 | < 0.000015 | < 0.000015 | < 0.000015 |
| Calcium | mg/L | -- | | | 30.6 | 36.1 | 36.3 | 30.8 | 33.9 | 41.5 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | | | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.003 |
| Cobalt | mg/L | 0.0009 | | | 0.0007 | 0.0004 | 0.0004 | 0.0003 | 0.0005 | 0.0008 |
| Copper | mg/L | 0.005 | | | 0.0028 | 0.0019 | 0.0021 | 0.0028 | 0.0012 | 0.0027 |
| Iron | mg/L | 0.3 | 1.41 | 7.36 | 0.949 | 0.629 | 0.564 | 0.431 | 1.09 | 1.49 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | | | 0.00028 | 0.00015 | 0.00017 | 0.00012 | 0.00018 | 0.00036 |
| Magnesium | mg/L | -- | | | 14.4 | 14.9 | 17.1 | 14.5 | 14.3 | 16.7 |
| Manganese | mg/L | -- | 0.135 | 0.245 | 0.075 | 0.052 | 0.026 | 0.037 | 0.22 | 0.083 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | | | < 0.00002 | < 0.00002 | <0.00002 | < 0.00002 | < 0.00002 | < 0.00002 |
| Molybdenum | mg/L | 0.04 | | | 0.0003 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0003 |
| Nickel | mg/L | 0.025 | | | 0.0029 | 0.0023 | 0.0021 | 0.0025 | 0.0026 | 0.0036 |
| Potassium | mg/L | -- | | | 3.2 | 3.3 | 3.9 | 3.8 | 3.4 | 4.8 |
| Selenium | mg/L | -- | | | | | | -- | -- | -- |
| Silicon | mg/L | -- | | | 2.65 | 5.08 | 4.85 | 3.14 | 5.74 | 7.07 |
| Silver | mg/L | 0.0001 | | | < 0.0001 | < 0.0001 | <0.0001 | < 0.0001 | < 0.0001 | < 0.0001 |
| Sodium | mg/L | -- | 34.6 | 48.5 | 34 | 36.7 | 40 | 34.7 | 35.7 | 42.3 |
| Strontium | mg/L | -- | | | 0.153 | 0.176 | 0.171 | 0.158 | 0.183 | 0.188 |
| Sulfur | mg/L | -- | | | 7.3 | 10.2 | 10.7 | 7.6 | 4.2 | 8.7 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | | | < 0.00005 | < 0.00005 | <0.00005 | < 0.00005 | < 0.00005 | < 0.00005 |
| Tin | mg/L | -- | | | | | | -- | -- | -- |
| Titanium | mg/L | -- | | | 0.038 | 0.023 | 0.026 | 0.013 | 0.02 | 0.064 |
| Vanadium | mg/L | 0.006 | | | 0.0024 | 0.0017 | 0.0014 | 0.0011 | 0.002 | 0.0028 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | | | 0.01 | 0.012 | 0.018 | < 0.005 | < 0.005 | 0.01 |
| Phenols | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | | | < 0.002 | < 0.002 | <0.002 | < 0.001 | < 0.001 | < 0.001 |
| Field Measurements | | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 6.7 | 16.2 | 6.4 | 10.5 | 9.3 | 9.3 | 5.5 | 5 |
| Conductivity (Field) | uS/cm | -- | 510 | 518 | 445 | 530 | 553 | 470 | 500 | 480 |
| pH (Field) | - | 8.5 | 7.7 | 7.8 | 8.85 | 8 | 7.8 | 7.7 | 7.3 | 7.21 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 20.8 | 0.5 | 22.6 | 17.3 | 3 | 21.3 | 20 | 10.2 |

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| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS20 | GS20 | GS20 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|--------------|
| | | | 04-May-2023 | 14-Aug-2023 | 29-Sept-2023 |
| | | | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 77 | 133 | 118 |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | 0.0001 | 0.0001 |
| Ammonia Nitrogen | mg/L | -- | < 0.01 | 0.07 | 0.07 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 3 | <3 | <3 |
| Chemical Oxygen Demand | mg/L | -- | 22 | 30 | 27 |
| Chloride | mg/L | 120-640 (CWQG FW) | 29.9 | 34.7 | 39.5 |
| Color | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | 440 |
| Dissolved Organic Carbon | mg/L | -- | 9.8 | 11.3 | 5.2 |
| Hardness, Calcium Carbonate | mg/L | -- | 91 | 125 | 143 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 3.64 | 3.73 | 3.32 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | < 0.05 | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 0.8 | 1.0 | 1.0 |
| Nitrogen, Nitrate-Nitrite | | | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.06 | 0.09 | 0.20 |
| Sulphate | mg/L | 128-429 (BC FW) | 17 | 18 | 28 |
| Total Dissolved Solids | mg/L | -- | 153 | -- | 211 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum | mg/L | 0.075 | 1.07 | 1.07 | 3.31 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.08 | 0.05 | 0.06 |
| Barium | mg/L | -- | 0.030 | 0.041 | 0.061 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | <0.0001 | 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.049 | 0.079 | 0.090 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | 0.000028 | 0.000030 | 0.000046 |
| Calcium | mg/L | -- | 20.3 | 29.1 | 33.5 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.004 | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.0008 | 0.0008 | 0.0022 |
| Copper | mg/L | 0.005 | 0.0044 | 0.0045 | 0.0073 |
| Iron | mg/L | 0.3 | 1.04 | 1.58 | 4.59 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00052 | 0.00041 | 0.00116 |
| Magnesium | mg/L | -- | 8.99 | 12.7 | 14.3 |
| Manganese | mg/L | -- | 0.028 | 0.149 | 0.117 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0003 | -- | -- |
| Nickel | mg/L | 0.025 | 0.0033 | 0.0042 | 0.0072 |
| Potassium | mg/L | -- | 3.0 | 3.7 | 5.3 |
| Selenium | mg/L | -- | -- | -- | -- |
| Silicon | mg/L | -- | 5.07 | 6.37 | 10.7 |
| Silver | mg/L | 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Sodium | mg/L | -- | 22.2 | 28.9 | 31.0 |
| Strontium | mg/L | -- | 0.107 | 0.146 | 0.170 |
| Sulfur | mg/L | -- | 4.0 | 5.38 | 10.0 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | <0.00005 | <0.00005 |
| Tin | mg/L | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.051 | 0.063 | 0.224 |
| Vanadium | mg/L | 0.006 | 0.0028 | 0.0027 | 0.0070 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.007 | 0.006 | 0.023 |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.001 | <0.001 | 0.002 |
| Field Measurements | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9.8 | 7.0 | -- |
| Conductivity (Field) | uS/cm | -- | 370 | 497 | 696 |
| pH (Field) | - | 8.5 | 7.47 | 6.70 | 6.90 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 9.3 | 16.3 | 12.3 |

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| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | GS21 | GS21 | GS21 | GS21 | |
|----------------------------------|----------------------|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | | 29-May-2007 | 23-Aug-2007 | 25-Nov-2007 | 01-May-2008 | 11-Aug-2008 | |
| | | | GS-21 | GS-21 | GS-21 | GS-21 | GS-21 | |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 112000 | 113000 | 122000 | | 79000 | 112000 |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | <20 | <20 | | <20 | <20 |
| Ammonia Nitrogen | mg/L | -- | 50 | 80 | 30 | | 40 | 60 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | 1000 | 2000 | -- | | <1000 | <1000 |
| Chemical Oxygen Demand | mg/L | -- | 11000 | <5000 | -- | | 7000 | <5000 |
| Chloride | mg/L | 120-640 (CWQG FW) | 42000 | 42000 | 71000 | | 27000 | 36000 |
| Color | color unit | -- | -- | -- | -- | | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 7300 | 5800 | 6300 | | 6300 | 5700 |
| Hardness, Calcium Carbonate | mg/L | -- | 123000 | 157000 | 150000 | | 96000 | 122000 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 1910 | 1970 | -- | | 2570 | 3360 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | <100 | -- | | <100 | <100 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 1110 | 1110 | -- | | 550 | 900 |
| Nitrogen, Nitrate-Nitrite | | -- | -- | -- | -- | | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 110 | 540 | 220 | | 50 | 160 |
| Sulphate | mg/L | 128-429 (BC FW) | 27000 | 38000 | -- | | 21000 | 27000 |
| Total Dissolved Solids | mg/L | -- | 277000 | 298000 | 380000 | | 206000 | 272000 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | 40 | 10 | -- | | 150 | 20 |
| Barium | mg/L | -- | 30 | 50 | -- | | 30 | 40 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | <1 | -- | | <1 | <1 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 60 | 70 | 50 | | 30 | 50 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | <0.1 | -- | | <0.1 | <0.1 |
| Calcium | mg/L | -- | 28000 | 38000 | 32000 | | 22000 | 29000 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 1 | 4 | -- | | 3 | 3 |
| Cobalt | mg/L | 0.0009 | 0.5 | 1 | -- | | 0.4 | 0.7 |
| Copper | mg/L | 0.005 | 3 | 5 | -- | | 3 | 4 |
| Iron | mg/L | 0.3 | 670 | 1530 | 980 | | 510 | 1090 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | 1 | -- | | <1 | <1 |
| Magnesium | mg/L | -- | 13000 | 15000 | 17000 | | 10000 | 12000 |
| Manganese | mg/L | -- | 60 | 90 | 60 | | 50 | 60 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | <0.1 | -- | | <0.1 | <0.1 |
| Molybdenum | mg/L | 0.04 | <5 | <5 | -- | | <5 | <5 |
| Nickel | mg/L | 0.025 | <5 | <5 | -- | | <5 | <5 |
| Potassium | mg/L | -- | 4000 | 5000 | -- | | 3000 | 4000 |
| Selenium | mg/L | -- | -- | -- | -- | | -- | -- |
| Silicon | mg/L | -- | 2600 | 6700 | -- | | 4800 | 5900 |
| Silver | mg/L | 0.0001 | <0.1 | <0.1 | -- | | <0.1 | <0.1 |
| Sodium | mg/L | -- | 34000 | 31000 | 45000 | | 23000 | 31000 |
| Strontium | mg/L | -- | 121 | 135 | -- | | 93 | 156 |
| Sulfur | mg/L | -- | 9000 | 12700 | -- | | 7000 | 9000 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | 0.4 | <0.1 | -- | | <0.1 | <0.1 |
| Tin | mg/L | -- | -- | -- | -- | | -- | -- |
| Titanium | mg/L | -- | 20 | 20 | -- | | 30 | 20 |
| Vanadium | mg/L | 0.006 | 3 | 5 | -- | | 2 | 5 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | <10 | -- | | <10 | <10 |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | <1 | -- | | <1 | <1 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 11790 | 5490 | 10700 | | 10550 | 4500 |
| Conductivity (Field) | uS/cm | -- | 280 | 500 | 460 | | 235 | 400 |
| pH (Field) | - | 8.5 | 8.8 | 7.7 | 7.9 | | 7 | 8.1 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 24.1 | 15.2 | 0.3 | | 4.4 | 17 |

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| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | | GS21 | |
|----------------------------------|-------------------------|-----------------------------|-------------|--|-------------|--|
| | | | 04-Nov-2008 | | 09-Apr-2009 | |
| | | | GS-21 | | GS-21 | |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 116000 | | 87000 | |
| Ammonia, unionized (Field) | mg/L | 0.02 | <20 | | <20 | |
| Ammonia Nitrogen | mg/L | -- | 30 | | <50 | |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <1000 | | <2000 | |
| Chemical Oxygen Demand | mg/L | -- | 15000 | | 16000 | |
| Chloride | mg/L | 120-640 (CWQG FW) | 39000 | | 28000 | |
| Color | color unit | -- | -- | | -- | |
| Conductivity | umho/cm | -- | -- | | -- | |
| Dissolved Organic Carbon | mg/L | -- | 6300 | | 6500 | |
| Hardness, Calcium Carbonate | mg/L | -- | 132000 | | 95000 | |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | 5380 | | 4200 | |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <100 | | <10 | |
| Nitrogen, Total Kjeldahl | mg/L | -- | 550 | | 900 | |
| Nitrogen, Nitrate-Nitrite | | -- | -- | | 4200 | |
| Nitrogen, Organic | mg/L | -- | -- | | -- | |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 130 | | 59 | |
| Sulphate | mg/L | 128-429 (BC FW) | 30000 | | 22000 | |
| Total Dissolved Solids | mg/L | -- | 297000 | | 202000 | |
| Total Organic Carbon | mg/L | -- | -- | | -- | |
| Total Suspended Solids | mg/L | -- | -- | | -- | |
| Turbidity | ntu | -- | -- | | -- | |
| Metals | | | | | | |
| Aluminum | mg/L | 0.075 | -- | | -- | |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | 20 | | 43 | |
| Barium | mg/L | -- | 40 | | 38 | |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <1 | | <0.5 | |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 60 | | 30 | |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.1 | | <0.1 | |
| Calcium | mg/L | -- | 28000 | | 23000 | |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 3 | | <5 | |
| Cobalt | mg/L | 0.0009 | 0.5 | | 0.5 | |
| Copper | mg/L | 0.005 | 4 | | 3 | |
| Iron | mg/L | 0.3 | 660 | | 700 | |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | <1 | | <0.5 | |
| Magnesium | mg/L | -- | 15000 | | 10000 | |
| Manganese | mg/L | -- | 40 | | 28 | |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | <0.1 | | <0.1 | |
| Molybdenum | mg/L | 0.04 | <5 | | <1 | |
| Nickel | mg/L | 0.025 | <5 | | 3 | |
| Potassium | mg/L | -- | 5000 | | 4000 | |
| Selenium | mg/L | -- | -- | | -- | |
| Silicon | mg/L | -- | 5800 | | 4900 | |
| Silver | mg/L | 0.0001 | <0.1 | | <0.1 | |
| Sodium | mg/L | -- | 33000 | | 23000 | |
| Strontium | mg/L | -- | 125 | | 100 | |
| Sulfur | mg/L | -- | 10000 | | 6200 | |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | <0.1 | | <0.05 | |
| Tin | mg/L | -- | -- | | -- | |
| Titanium | mg/L | -- | 10 | | 37 | |
| Vanadium | mg/L | 0.006 | 3 | | 3 | |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | <10 | | 6 | |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | <1 | | <1 | |
| Field Measurements | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8490 | | 11650 | |
| Conductivity (Field) | uS/cm | -- | 400 | | 310 | |
| pH (Field) | - | 8.5 | 7.8 | | 8 | |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 9.5 | | 9 | |

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| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | GS21 | GS21 | GS21 | RPD | GS21 |
|----------------------------------|----------------------|-----------------------------|-------------|---------------|---------------|-------------------|-------|-------------|
| | | | 01-May-2017 | 20-Sep-2017 | 06-Nov-2017 | 06-Nov-2017 | | 30-Apr-2018 |
| | | | GS-21 | GS-21 | GS-21 | GS-21 | GS-21 | GS-21 |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 51 | 95 | 70 | Dup (GS 23) 71 | 1% | 82 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0004 | 0.0030 | 0.0008 | | NC | 0.0003 |
| Ammonia Nitrogen | mg/L | -- | 0.1 | 0.06 | 0.07 | 0.06 | 15% | 0.03 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | < 3 | < 3 | < 3 | NC | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | 10 | 40 | 42 | 5% | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 11 | 25 | 17.1 | 17.3 | 1% | 26.7 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | 208 | 376 | 258 | 264 | 2% | -- |
| Dissolved Organic Carbon | mg/L | -- | 10.4 | 6.9 | 11.3 | 11.1 | 2% | 9.4 |
| Hardness, Calcium Carbonate | mg/L | -- | 92 | 128 | 101 | 101 | NC | 113 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | 2.5 | 5.22 | 5.23 | NC | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | < 0.1 | < 0.05 | < 0.05 | NC | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | 1 | 0.9 | 1 | 11% | -- |
| Nitrogen, Nitrate-Nitrite | | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.28 | 0.16 | 0.1 | 0.1 | NC | 0.11 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | 22 | 16 | 16 | NC | -- |
| Total Dissolved Solids | mg/L | -- | 110 | 196 | 132 | 135 | 2% | -- |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | 2.88 | 2.26 | 2.34 | 3% | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | -- | 0.03 | 0.11 | 0.11 | NC | -- |
| Barium | mg/L | -- | -- | 0.062 | 0.049 | 0.051 | 4% | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | < 0.002 | < 0.002 | < 0.002 | NC | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.028 | 0.061 | 0.032 | 0.032 | NC | 0.03 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | 0.000051 | 0.000089 | 0.000085 | 5% | -- |
| Calcium | mg/L | -- | -- | 32.7 | 22.3 | 23.2 | 4% | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | 0.008 | 0.006 | 0.005 | 18% | -- |
| Cobalt | mg/L | 0.0009 | -- | 0.0021 | 0.0015 | 0.0015 | NC | -- |
| Copper | mg/L | 0.005 | -- | 0.0126 | 0.0085 | 0.0079 | 7% | -- |
| Iron | mg/L | 0.3 | 10.7 | 3.62 | 2.52 | 2.63 | 4% | 2.15 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | 0.00143 | 0.00127 | 0.00127 | NC | -- |
| Magnesium | mg/L | -- | -- | 14.6 | 10.4 | 10.7 | 3% | -- |
| Manganese | mg/L | -- | 0.151 | 0.1 | 0.056 | 0.058 | 4% | 0.041 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | < 0.00002 | < 0.00002 | < 0.00002 | NC | -- |
| Molybdenum | mg/L | 0.04 | -- | 0.0005 | 0.0003 | 0.0003 | NC | -- |
| Nickel | mg/L | 0.025 | -- | 0.0086 | 0.0074 | 0.0073 | 1% | -- |
| Potassium | mg/L | -- | -- | 4.7 | 3.9 | 4.1 | 5% | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | 9.1 | 8.23 | 8.45 | 3% | -- |
| Silver | mg/L | 0.0001 | -- | < 0.00002 | < 0.00002 | < 0.00002 | NC | -- |
| Sodium | mg/L | -- | 14.6 | 28.3 | 18 | 18.6 | 3% | 24.1 |
| Strontium | mg/L | -- | -- | 0.193 | 0.103 | 0.105 | 2% | -- |
| Sulfur | mg/L | -- | -- | 7.7 | 5.6 | 5.7 | 2% | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | < 0.00005 | < 0.00005 | < 0.00005 | NC | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | 0.184 | 0.124 | 0.13 | 5% | -- |
| Vanadium | mg/L | 0.006 | -- | 0.0073 | 0.0042 | 0.0042 | NC | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | 0.043 | 0.027 | 0.022 | 20% | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | < 0.001 | < 0.001 | < 0.001 | NC | < 0.001 |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9.24 | 8.89 | 6.78 | -- | -- | 7.69 |
| Conductivity (Field) | uS/cm | -- | 183 | 328 | 262 | -- | -- | 259 |
| pH (Field) | - | 8.5 | 7.3 | 7.9 | 7.7 | -- | -- | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 7.6 | 24.4 | 10.7 | -- | -- | 9.7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | | GS21 | | GS21 | |
|----------------------------------|----------------------|-----------------------------|-------------|-----|-------------|--------|-------------|-------|
| | | | 30-Apr-2018 | | 20-Aug-2018 | | 20-Aug-2018 | |
| | | | GS-21 | RDP | GS-21 | GS-21 | GS-21 | GS-21 |
| | | | GS-22 Dup | RDP | | GS-21 | GS-22 Dup | RDP |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 82 | NC | | 90 | 90 | NC |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0003 | NC | | 0.0022 | 0.0022 | NC |
| Ammonia Nitrogen | mg/L | -- | 0.03 | NC | | 0.04 | 0.04 | NC |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 27.1 | 1% | | 33.3 | 33.5 | 1% |
| Color | color unit | -- | -- | -- | | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9.1 | 3% | | 5.9 | 6.1 | 3% |
| Hardness, Calcium Carbonate | mg/L | -- | 117 | 3% | | 114 | 117 | 3% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.11 | NC | | 0.07 | 0.07 | NC |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 161 | -- | | 189 | 190 | 1% |
| Total Organic Carbon | mg/L | -- | -- | -- | | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | -- | -- | | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.031 | 3% | | 0.056 | 0.056 | NC |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | | -- | -- | -- |
| Iron | mg/L | 0.3 | 2.32 | 8% | | 1.39 | 1.44 | 4% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | | -- | -- | -- |
| Manganese | mg/L | -- | 0.053 | 26% | | 0.032 | 0.033 | 3% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | | -- | -- | -- |
| Sodium | mg/L | -- | 25 | 4% | | 27.2 | 27.5 | 1% |
| Strontium | mg/L | -- | -- | -- | | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7.69 | NC | | 5.36 | 5.36 | NC |
| Conductivity (Field) | uS/cm | -- | 259 | NC | | 298 | 298 | NC |
| pH (Field) | - | 8.5 | 7.7 | NC | | 8 | 8 | NC |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 9.7 | NC | | 22.2 | 22.2 | NC |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | | RDP | GS21 24-Apr-19 |
|----------------------------------|----------------------|-----------------------------|--------------|--------------|-----|-------------------|
| | | | 05-Nov-2018 | 05-Nov-2018 | | |
| | | | GS-21 | GS-21 | | |
| | | | GS-22 Dup | | | GS-21 |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 110 | 110 | NC | 81 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0002 | | NC | 0.0007 |
| Ammonia Nitrogen | mg/L | -- | 0.03 | 0.03 | NC | 0.08 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | |
| Chloride | mg/L | 120-640 (CWQG FW) | 37.2 | 37.2 | NC | 20 |
| Color | color unit | -- | -- | -- | -- | |
| Conductivity | umho/cm | -- | -- | -- | -- | |
| Dissolved Organic Carbon | mg/L | -- | 6.7 | 6.8 | 1% | 9.1 |
| Hardness, Calcium Carbonate | mg/L | -- | 132 | 139 | 5% | 79 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.05 | NC | 0.11 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | |
| Total Dissolved Solids | mg/L | -- | 210 | 215 | 2% | 126 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | |
| Turbidity | ntu | -- | -- | -- | -- | |
| Metals | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | -- | -- | -- | |
| Barium | mg/L | -- | -- | -- | -- | |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.035 | 0.036 | 3% | 0.021 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | |
| Calcium | mg/L | -- | 29.6 | 31 | 5% | |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | |
| Copper | mg/L | 0.005 | -- | -- | -- | |
| Iron | mg/L | 0.3 | 0.746 | 0.993 | 28% | 1.51 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | |
| Magnesium | mg/L | -- | 14.2 | 15 | 5% | |
| Manganese | mg/L | -- | 0.017 | 0.019 | 11% | 0.044 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | |
| Nickel | mg/L | 0.025 | -- | -- | -- | |
| Potassium | mg/L | -- | -- | -- | -- | |
| Selenium | mg/L | -- | -- | -- | -- | |
| Silicon | mg/L | -- | -- | -- | -- | |
| Silver | mg/L | 0.0001 | -- | -- | -- | |
| Sodium | mg/L | -- | 29.3 | 30.8 | 5% | 14.7 |
| Strontium | mg/L | -- | -- | -- | -- | |
| Sulfur | mg/L | -- | -- | -- | -- | |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | |
| Tin | mg/L | -- | -- | -- | -- | |
| Titanium | mg/L | -- | -- | -- | -- | |
| Vanadium | mg/L | 0.006 | -- | -- | -- | |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | |
| Field Measurements | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 9.6 | 9.6 | NC | 8.24 |
| Conductivity (Field) | uS/cm | -- | 344 | 344 | NC | 258 |
| pH (Field) | - | 8.5 | 7.5 | 7.5 | NC | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 6.8 | 6.8 | NC | 7 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | | GS21 | GS21 | GS21 | GS21 |
|----------------------------------|----------------------|-----------------------------|-----------|-----|-----------|-----------|-----------|------|
| | | | 24-Apr-19 | | 24-Sep-19 | 31-Oct-19 | 31-Oct-19 | |
| | | | GS-21 | RDP | GS-21 | GS-21 | GS-21 | RDP |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 59 | 31% | 132 | 95 | 94 | 1% |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | -- | 0.0019 | 0.0002 | -- | -- |
| Ammonia Nitrogen | mg/L | -- | 0.07 | 13% | 0.08 | 0.04 | 0.04 | 0% |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 19.7 | 2% | 49.6 | 45.6 | 45.7 | 0% |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 9 | 1% | 15.9 | 6.5 | 6.6 | 2% |
| Hardness, Calcium Carbonate | mg/L | -- | 79 | 0% | 151 | 155 | 147 | 5% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.11 | 0% | 0.140 | 0.080 | 0.090 | 12% |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 113 | -- | 256 | 240 | 235 | 2% |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.023 | 9% | 0.39 | 0.044 | 0.04 | 10% |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | 35.5 | 33.9 | 33.9 | 5% |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1.61 | 6% | 5.19 | 1.76 | 1.67 | 5% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | 16.2 | 15.2 | 15.2 | 6% |
| Manganese | mg/L | -- | 0.046 | 4% | 0.28 | 0.029 | 0.028 | 4% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 14.9 | 1% | 47.1 | 35.9 | 33.8 | 6% |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | -- | NC | 12.2 | 11.2 | -- | -- |
| Conductivity (Field) | uS/cm | -- | -- | NC | 556 | 455 | -- | -- |
| pH (Field) | - | 8.5 | -- | NC | 7.9 | 7.4 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | -- | NC | 14.2 | 11.1 | -- | -- |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | GS21 | GS21 | | GS21 | GS21 |
|----------------------------------|----------------------|-----------------------------|-----------|-----------|-----------|--------|-----------|-----------|
| | | | 25-May-20 | 29-Jul-20 | 29-Jul-20 | | 03-Nov-20 | 25-May-21 |
| | | | GS-21 | GS-21 | Dup GS 22 | | GS-21 | GS21 |
| | | | GS-22 | | | RPD | | |
| General Chemistry | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 109 | 104 | 103 | 0.97% | 116 | 106 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0013 | 0.0008 | | 0.00% | 0.0001 | 0.0318 |
| Ammonia Nitrogen | mg/L | -- | 0.04 | 0.04 | 0.03 | 28.57% | 0.01 | 0.09 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | | | | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | | | | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 32.7 | 45.4 | 44.6 | 1.78% | 55.2 | 34.9 |
| Color | color unit | -- | | | | -- | -- | -- |
| Conductivity | umho/cm | -- | | | | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 6.6 | 7.2 | 10.6 | 38.20% | 7.9 | 5.6 |
| Hardness, Calcium Carbonate | mg/L | -- | 131 | 198 | 198 | 0.00% | 158 | 118 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | | | | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | | | | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | | | | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | | -- | | | | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | | | | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.05 | 0.11 | 0.1 | 9.52% | 0.05 | 0.07 |
| Sulphate | mg/L | 128-429 (BC FW) | | | | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 198 | 244 | 242 | 0.82% | 262 | 195 |
| Total Organic Carbon | mg/L | -- | | | | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | | | | -- | -- | -- |
| Turbidity | ntu | -- | | | | -- | -- | -- |
| Metals | | | | | | | | |
| Aluminum | mg/L | 0.075 | | | | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁸⁾ | | | | -- | -- | -- |
| Barium | mg/L | -- | | | | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | | | | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.045 | 0.156 | 0.15 | 3.92% | 0.045 | 0.045 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | | | | -- | -- | -- |
| Calcium | mg/L | -- | | | | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | | | | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | | | | -- | -- | -- |
| Copper | mg/L | 0.005 | | | | -- | -- | -- |
| Iron | mg/L | 0.3 | 0.469 | 1.61 | 1.63 | 1.23% | 1.25 | 1.01 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | | | | -- | -- | -- |
| Magnesium | mg/L | -- | | | | -- | -- | -- |
| Manganese | mg/L | -- | 0.038 | 0.061 | 0.061 | 0.00% | 0.02 | 0.092 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | | | | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | | | | -- | -- | -- |
| Nickel | mg/L | 0.025 | | | | -- | -- | -- |
| Potassium | mg/L | -- | | | | -- | -- | -- |
| Selenium | mg/L | -- | | | | -- | -- | -- |
| Silicon | mg/L | -- | | | | -- | -- | -- |
| Silver | mg/L | 0.0001 | | | | -- | -- | -- |
| Sodium | mg/L | -- | 29.2 | 27.3 | 27.4 | 0.37% | 40.5 | 25.6 |
| Strontium | mg/L | -- | | | | -- | -- | -- |
| Sulfur | mg/L | -- | | | | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | | | | -- | -- | -- |
| Tin | mg/L | -- | | | | -- | -- | -- |
| Titanium | mg/L | -- | | | | -- | -- | -- |
| Vanadium | mg/L | 0.006 | | | | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | | | | -- | -- | -- |
| Phenols | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | | | | -- | -- | -- |
| Field Measurements | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 8.8 | 6.2 | | | 15.4 | 8 |
| Conductivity (Field) | uS/cm | -- | 418 | 544 | | | 620 | 393 |
| pH (Field) | - | 8.5 | 7.9 | 7.6 | | | 7.9 | 8.95 |
| Temperature (Field) | deg c | -- ⁽⁶⁾ | 18.6 | 20.1 | | | 0.7 | 22.1 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | | GS21 | GS21 | | GS21 | GS21 | | GS21 |
|----------------------------------|----------------------|-----------------------------|-----------|---------|-----------|-----------|---------|-----------|-----------|---------|-------------|
| | | | 25-May-21 | | 16-Aug-21 | 16-Aug-21 | | 11-Nov-21 | 16-Aug-21 | | 30-May-2022 |
| | | | Dup #1 | RPD | GS21 | Dup #1 | RPD | GS21 | Dup #1 | RPD | GS21 |
| General Chemistry | | | | | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 105 | 0.95% | 115 | 115 | 0.00% | 118 | 115 | 0.00% | 114 |
| Ammonia, unionized (Field) | mg/L | 0.02 | -- | 200.00% | 0.0007 | -- | 200.00% | 0.0002 | -- | 200.00% | 0.0007 |
| Ammonia Nitrogen | mg/L | -- | 0.08 | 11.76% | 0.02 | 0.02 | 0.00% | 0.02 | 0.02 | 0.00% | 0.03 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 35.2 | 0.86% | 41.6 | 41.3 | 0.72% | 48.5 | 41.3 | 0.72% | 39.5 |
| Color | color unit | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | -- | -- | -- | -- | 393 |
| Dissolved Organic Carbon | mg/L | -- | 5.5 | 1.80% | 6.1 | 8.7 | 35.14% | 8.1 | 8.7 | 35.14% | 9.9 |
| Hardness, Calcium Carbonate | mg/L | -- | 123 | 4.15% | 133 | 138 | 3.69% | 169 | 138 | 3.69% | 127 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.1 | 35.29% | 0.03 | 0.03 | 0.00% | 0.03 | 0.03 | 0.00% | 0.04 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 197 | 1.02% | 222 | 224 | 0.90% | 253 | 224 | 0.90% | 206 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.047 | 4.35% | 0.061 | 0.064 | 4.80% | 0.047 | 0.064 | 4.80% | 0.038 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1.08 | 6.70% | 0.3 | 0.308 | 2.63% | 0.518 | 0.308 | 2.63% | 0.289 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 0.095 | 3.21% | 0.015 | 0.015 | 0.00% | 0.014 | 0.015 | 0.00% | 0.026 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sodium | mg/L | -- | 26.6 | 3.83% | 30 | 31 | 3.28% | 38.4 | 31 | 3.28% | 28 |
| Strontium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Phenols | | | | | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Field Measurements | | | | | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁸⁾ | -- | -- | 13.4 | -- | -- | -- | -- | -- | 9.8 |
| Conductivity (Field) | uS/cm | -- | -- | -- | 480 | -- | -- | 521 | -- | -- | 430 |
| pH (Field) | - | 8.5 | -- | -- | 8 | -- | -- | 7.8 | -- | -- | 7.7 |
| Temperature (Field) | deg c | -- ⁽⁵⁾ | -- | -- | 17 | -- | -- | 3.6 | -- | -- | 20.4 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | GS21 | GS21 | RPD |
|----------------------------------|-------------------------|-----------------------------|--------------|-------------|-------------|--------|
| | | | 27-July-2022 | 25-Oct-2022 | 25-Oct-2022 | |
| | | | GS21 | GS21 | Dup #1 | |
| General Chemistry | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 129 | 104 | 105 | 0.96% |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0005 | 0.0003 | | NC |
| Ammonia Nitrogen | mg/L | -- | 0.08 | 0.02 | 0.02 | 0.00% |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 37.1 | 42.9 | 43.8 | 2.08% |
| Color | color unit | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | 416 | 435 | 424 | 2.56% |
| Dissolved Organic Carbon | mg/L | -- | 13.4 | 3.9 | 6.6 | 51.43% |
| Hardness, Calcium Carbonate | mg/L | -- | 147 | 153 | 144 | 6.06% |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.11 | 0.06 | 0.08 | 28.57% |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 216 | 225 | 221 | 1.79% |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- |
| Metals | | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.069 | 0.057 | 0.049 | 15.09% |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- |
| Calcium | mg/L | -- | -- | -- | -- | -- |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- | -- |
| Iron | mg/L | 0.3 | 1.64 | 1.3 | 1.29 | 0.77% |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- |
| Magnesium | mg/L | -- | -- | -- | -- | -- |
| Manganese | mg/L | -- | 0.179 | 0.049 | 0.047 | 4.17% |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- | -- |
| Sodium | mg/L | -- | 31.3 | 33 | 30.1 | 9.19% |
| Strontium | mg/L | -- | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- |
| Phenols | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- |
| Field Measurements | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁹⁾ | 4.5 | 5.6 | 5.6 | |
| Conductivity (Field) | uS/cm | -- | 450 | 430 | 430 | |
| pH (Field) | - | 8.5 | 7.08 | 7.69 | 7.69 | |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | 20.6 | 12.2 | 12.2 | |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS21 | GS21 | GS21 |
|----------------------------------|-------------------------|-----------------------------|--------------|-------------|--------------|
| | | | 05-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | GS21 | GS21 | GS21 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 83 | 122 | 123 |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | 0.0013 | 0.0008 |
| Ammonia Nitrogen | mg/L | -- | < 0.01 | 0.08 | 0.09 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | -- | -- | -- |
| Chemical Oxygen Demand | mg/L | -- | -- | -- | -- |
| Chloride | mg/L | 120-640 (CWQG FW) | 25.7 | 30.5 | 36.4 |
| Color | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | mg/L | -- | 10.3 | 7.6 | 6.4 |
| Hardness, Calcium Carbonate | mg/L | -- | 86 | 123 | 128 |
| Nitrate as N | mg/L | 13-550 (CWQG FW) | -- | -- | -- |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | -- | -- | -- |
| Nitrogen, Total Kjeldahl | mg/L | -- | -- | -- | -- |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.04 | 0.08 | 0.18 |
| Sulphate | mg/L | 128-429 (BC FW) | -- | -- | -- |
| Total Dissolved Solids | mg/L | -- | 147 | 201 | 198 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum | mg/L | 0.075 | -- | -- | -- |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽⁶⁾ | -- | -- | -- |
| Barium | mg/L | -- | -- | -- | -- |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.025 | 0.046 | 0.059 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- |
| Calcium | mg/L | -- | 19.5 | -- | 30.0 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- |
| Cobalt | mg/L | 0.0009 | -- | -- | -- |
| Copper | mg/L | 0.005 | -- | -- | -- |
| Iron | mg/L | 0.3 | 0.840 | 0.072 | 5.05 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- |
| Magnesium | mg/L | -- | 9.03 | -- | 13.0 |
| Manganese | mg/L | -- | 0.035 | 0.030 | 0.199 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- |
| Molybdenum | mg/L | 0.04 | -- | -- | -- |
| Nickel | mg/L | 0.025 | -- | -- | -- |
| Potassium | mg/L | -- | -- | -- | -- |
| Selenium | mg/L | -- | -- | -- | -- |
| Silicon | mg/L | -- | -- | -- | -- |
| Silver | mg/L | 0.0001 | -- | -- | -- |
| Sodium | mg/L | -- | 18.6 | 26.9 | 26.8 |
| Strontium | mg/L | -- | -- | -- | -- |
| Sulfur | mg/L | -- | -- | -- | -- |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- |
| Tin | mg/L | -- | -- | -- | -- |
| Titanium | mg/L | -- | -- | -- | -- |
| Vanadium | mg/L | 0.006 | -- | -- | -- |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | -- | -- | -- |
| Field Measurements | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 10.7 | 14.6 | -- |
| Conductivity (Field) | uS/cm | -- | 390 | 355 | 377 |
| pH (Field) | - | 8.5 | 8.02 | 7.63 | 7.54 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 7.7 | 16.6 | 12.0 |

CLARENCE-ROCKLAND LANDFILL - REPORT OF MONITORING RESULTS
SURFACE WATER DATA

| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS22 | GS22 | GS22 | GS22 | GS22 |
|----------------------------------|-------------------------|-----------------------------|-------------|----------------------------|-------------|--------------|-------------|
| | | | 16-Aug-2021 | 11-Nov-2021 ⁽⁹⁾ | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | GS-21 | GS-21 | GS-21 | GS-20 | GS-20 |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁶⁾ | 150 | -- | -- | -- | 119 |
| Ammonia, unionized (Field) | mg/L | 0.02 | 0.0008 | -- | -- | -- | 0.0003 |
| Ammonia Nitrogen | mg/L | -- | 0.03 | -- | -- | -- | 0.01 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | <3 | -- | -- | -- | < 3 |
| Chemical Oxygen Demand | mg/L | -- | 32 | -- | -- | -- | 16 |
| Chloride | mg/L | 20-640 (CWQG FV) | 214 | -- | -- | -- | 26.4 |
| Color | color unit | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | -- | -- | 379 |
| Dissolved Organic Carbon | mg/L | -- | 5.7 | -- | -- | -- | 7 |
| Hardness, Calcium Carbonate | mg/L | -- | 186 | -- | -- | -- | 153 |
| Nitrate as N | mg/L | 3-550 (CWQG FV) | 1.25 | -- | -- | -- | 0.6 |
| Nitrite as N | mg/L | 0.06 (CWQG FW) | <0.05 | -- | -- | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 0.9 | -- | -- | -- | 0.5 |
| Nitrogen, Nitrate-Nitrite | | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.15 | -- | -- | -- | 0.03 |
| Sulphate | mg/L | 128-429 (BC FW) | 33 | -- | -- | -- | 19 |
| Total Dissolved Solids | mg/L | -- | 535 | -- | -- | -- | 194 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | mg/L | 0.075 | 1.05 | -- | -- | -- | 0.12 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.04 | -- | -- | -- | 0.03 |
| Barium | mg/L | -- | 0.047 | -- | -- | -- | 0.032 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | <0.0001 | -- | -- | -- | < 0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.025 | -- | -- | -- | 0.012 |
| Cadmium | mg/L | 0.0002 ⁽¹³⁾ | <0.000015 | -- | -- | -- | < 0.000015 |
| Calcium | mg/L | -- | 56.4 | -- | -- | -- | 45.4 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.002 | -- | -- | -- | < 0.001 |
| Cobalt | mg/L | 0.0009 | 0.0006 | -- | -- | -- | 0.0002 |
| Copper | mg/L | 0.005 | 0.0035 | -- | -- | -- | 0.001 |
| Iron | mg/L | 0.3 | 1.11 | -- | -- | -- | 0.456 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00036 | -- | -- | -- | 0.00007 |
| Magnesium | mg/L | -- | 10.7 | -- | -- | -- | 11.6 |
| Manganese | mg/L | -- | 0.083 | -- | -- | -- | 0.027 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | -- | -- | -- | < 0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0006 | -- | -- | -- | 0.0002 |
| Nickel | mg/L | 0.025 | 0.0021 | -- | -- | -- | 0.001 |
| Potassium | mg/L | -- | 6.2 | -- | -- | -- | 2.1 |
| Selenium | mg/L | -- | -- | -- | -- | -- | -- |
| Silicon | mg/L | -- | 5.41 | -- | -- | -- | 6.47 |
| Silver | mg/L | 0.0001 | < 0.0001 | -- | -- | -- | < 0.0001 |
| Sodium | mg/L | -- | 124 | -- | -- | -- | 17.4 |
| Strontium | mg/L | -- | 0.21 | -- | -- | -- | 0.141 |
| Sulfur | mg/L | -- | 11.4 | -- | -- | -- | 6.1 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | 0.00007 | -- | -- | -- | < 0.00005 |
| Tin | mg/L | -- | -- | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.055 | -- | -- | -- | 0.007 |
| Vanadium | mg/L | 0.006 | 0.0031 | -- | -- | -- | 0.0009 |
| Zinc | mg/L | 0.03 ⁽¹⁸⁾ | 0.013 | -- | -- | -- | < 0.005 |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁹⁾ | < 0.002 | -- | -- | -- | < 0.001 |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 16.9 | -- | -- | -- | 7.1 |
| Conductivity (Field) | uS/cm | -- | 1150 | -- | -- | -- | 340 |
| pH (Field) | - | 8.5 | 7.93 | -- | -- | -- | 8.02 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 17 | -- | -- | -- | 14.5 |

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| Parameter | Unit (June 2017+) | (2) (1) PWQO | GS22 | GS22 | GS22 |
|----------------------------------|-------------------------|-----------------------------|-------------|-------------|--------------|
| | | | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | GS-20 | GS-20 | GS-20 |
| General Chemistry | | | | | |
| Alkalinity (Total as CaCO3) | mg/L | -- ⁽⁹⁾ | 53 | 119 | 188 |
| Ammonia, unionized (Field) | mg/L | 0.02 | < 0.01 | 0.0016 | <0.05 |
| Ammonia Nitrogen | mg/L | -- | < 0.01 | 0.07 | <0.05 |
| Biochemical Oxygen Demand, 5 Day | mg/L | -- | < 3 | <3 | <3 |
| Chemical Oxygen Demand | mg/L | -- | 40 | 59 | 27 |
| Chloride | mg/L | 20-640 (CWQG FV) | 15.6 | 85.0 | 180 |
| Color | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | -- | -- | 887 |
| Dissolved Organic Carbon | mg/L | -- | 26.1 | 27.4 | 3.2 |
| Hardness, Calcium Carbonate | mg/L | -- | 68 | 116 | 197 |
| Nitrate as N | mg/L | 3-550 (CWQG FV) | 1.70 | 0.07 | 0.09 |
| Nitrite as N | mg/L | 0.06 (CWQG FV) | < 0.05 | <0.05 | <0.05 |
| Nitrogen, Total Kjeldahl | mg/L | -- | 0.4 | 0.8 | 0.5 |
| Nitrogen, Nitrate-Nitrite | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | mg/L | -- | -- | -- | -- |
| Phosphorus | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.04 | 0.08 | 0.09 |
| Sulphate | mg/L | 128-429 (BC FW) | 12 | 7 | 11 |
| Total Dissolved Solids | mg/L | -- | 90 | 253 | 484 |
| Total Organic Carbon | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- | -- | -- | -- |
| Metals | | | | | |
| Aluminum | mg/L | 0.075 | 0.53 | 0.43 | 0.49 |
| Aluminum, dissolved | mg/L | 0.015-0.075 ⁽¹⁶⁾ | 0.22 | 0.13 | 0.05 |
| Barium | mg/L | -- | 0.019 | 0.025 | 0.035 |
| Beryllium | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | <0.0001 | <0.0001 |
| Boron | mg/L | 0.2 ⁽¹²⁾ | 0.007 | 0.011 | 0.010 |
| Cadmium | mg/L | 0.0002 ⁽¹⁵⁾ | 0.000034 | 0.000017 | <0.000015 |
| Calcium | mg/L | -- | 17.8 | 32.6 | 57.0 |
| Chromium | mg/L | -- ⁽¹⁴⁾ | 0.002 | -- | -- |
| Cobalt | mg/L | 0.0009 | 0.0006 | 0.0003 | 0.0005 |
| Copper | mg/L | 0.005 | 0.0036 | 0.0023 | 0.0028 |
| Iron | mg/L | 0.3 | 0.848 | 1.13 | 0.813 |
| Lead | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00059 | 0.00024 | 0.00021 |
| Magnesium | mg/L | -- | 5.20 | 8.43 | 13.2 |
| Manganese | mg/L | -- | 0.077 | 0.029 | 0.243 |
| Mercury, dissolved | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | <0.00002 | <0.00002 |
| Molybdenum | mg/L | 0.04 | 0.0002 | -- | -- |
| Nickel | mg/L | 0.025 | 0.0011 | 0.0018 | 0.0017 |
| Potassium | mg/L | -- | 1.1 | 1.3 | 3.7 |
| Selenium | mg/L | -- | -- | -- | -- |
| Silicon | mg/L | -- | 3.97 | 5.96 | 5.93 |
| Silver | mg/L | 0.0001 | < 0.0001 | <0.0001 | <0.0001 |
| Sodium | mg/L | -- | 7.5 | 44.6 | 88.7 |
| Strontium | mg/L | -- | 0.071 | 0.116 | 0.194 |
| Sulfur | mg/L | -- | 3.1 | 2.76 | 4.44 |
| Thallium | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | <0.00005 | <0.00005 |
| Tin | mg/L | -- | -- | -- | -- |
| Titanium | mg/L | -- | 0.023 | 0.021 | 0.032 |
| Vanadium | mg/L | 0.006 | 0.0016 | 0.0020 | 0.0016 |
| Zinc | mg/L | 0.03 ⁽¹⁵⁾ | < 0.005 | 0.005 | 0.007 |
| Phenols | | | | | |
| Phenolics, Total Recoverable | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | <0.001 | 0.006 |
| Field Measurements | | | | | |
| Dissolved Oxygen (Field) | mg/L | -- ⁽⁶⁾ | 7.2 | 13.5 | -- |
| Conductivity (Field) | uS/cm | -- | 240 | 433 | 822 |
| pH (Field) | - | 8.5 | 7.61 | 7.72 | 7.70 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | 9.4 | 18.5 | 13.2 |

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| Parameter | Unit (< June 2016) | (2) (1) PWQO | Unit (June 2017+) | (2) (1) PWQO | GS23 | GS23 | GS23 | GS23 | GS23 |
|----------------------------------|--------------------------|-----------------------|-------------------------|-----------------------------|----------------------------|----------------------------|-------------|--------------|-------------|
| | | | | | 16-Aug-2021 ⁽⁹⁾ | 11-Nov-2021 ⁽⁹⁾ | 30-May-2022 | 27-July-2022 | 25-Oct-2022 |
| | | | | | GS-21 | GS-21 | GS-21 | GS-21 | GS-21 |
| General Chemistry | | | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁸⁾ | mg/L | -- ⁽⁸⁾ | -- | -- | -- | -- | 128 |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | -- | -- | -- | -- | < 0.01 |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | -- | -- | -- | -- | < 0.01 |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | -- | -- | -- | -- | < 3 |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 24 |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | -- | -- | -- | -- | 94 |
| Color | color unit | -- | color unit | -- | -- | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- | -- | 574 |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 5.1 |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 160 |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | -- | -- | -- | -- | < 0.05 |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | -- | -- | -- | -- | < 0.05 |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 0.4 |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | -- | -- | -- | -- | 0.06 |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | -- | -- | -- | -- | 12 |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 294 |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- | -- | -- | -- | -- | -- |
| Metals | | | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | -- | -- | -- | -- | 0.02 |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | -- | -- | -- | -- | 0.04 |
| Barium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 0.023 |
| Beryllium | ug/l | 11-1100 | mg/L | 0.011-1.1 ⁽¹¹⁾ | -- | -- | -- | -- | < 0.0001 |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | -- | -- | -- | -- | 0.011 |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | -- | -- | -- | -- | < 0.000015 |
| Calcium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 45.3 |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | -- ⁽¹⁴⁾ | -- | -- | -- | -- | < 0.001 |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | -- | -- | -- | -- | 0.0003 |
| Copper | ug/l | 5 | mg/L | 0.005 | -- | -- | -- | -- | 0.0021 |
| Iron | ug/l | 300 | mg/L | 0.3 | -- | -- | -- | -- | 0.082 |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | -- | -- | -- | -- | 0.0001 |
| Magnesium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 11.3 |
| Manganese | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 0.012 |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | -- | -- | -- | -- | < 0.00002 |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | -- | -- | -- | -- | 0.0001 |
| Nickel | ug/l | 25 | mg/L | 0.025 | -- | -- | -- | -- | 0.0011 |
| Potassium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 2.9 |
| Selenium | ug/l | 100 | mg/L | -- | -- | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 6.09 |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | -- | -- | -- | -- | < 0.0001 |
| Sodium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 51.5 |
| Strontium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 0.142 |
| Sulfur | ug/l | -- | mg/L | -- | -- | -- | -- | -- | 4 |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | -- | -- | -- | -- | < 0.00005 |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | -- | -- | -- | -- | < 0.005 |
| Vanadium | ug/l | 6 | mg/L | 0.006 | -- | -- | -- | -- | 0.001 |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | -- | -- | -- | -- | 0.024 |
| Phenols | | | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | -- | -- | -- | -- | < 0.001 |
| Field Measurements | | | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁸⁾ | mg/L | -- ⁽⁸⁾ | -- | -- | -- | -- | 6.2 |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | -- | -- | -- | -- | 520 |
| pH (Field) | - | 8.5 | - | 8.5 | -- | -- | -- | -- | 8.05 |
| Temperature (Field) | deg c | -- ⁽⁸⁾ | deg c | -- ⁽⁸⁾ | -- | -- | -- | -- | 12.2 |

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| Parameter | Unit | (2) (1) | Unit | (2) (1) | GS23 | GS23 | GS23 |
|----------------------------------|---------------|-----------------------|--------------|-----------------------------|-------------|-------------|--------------|
| | (< June 2016) | PWQO | (June 2017+) | PWQO | 04-May-2023 | 16-Aug-2023 | 29-Sept-2023 |
| | | | | | GS-21 | GS-21 | GS-21 |
| | | | | | DRY | DRY | DRY |
| General Chemistry | | | | | | | |
| Alkalinity (Total as CaCO3) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 54 | -- | -- |
| Ammonia, unionized (Field) | ug/l | 20 | mg/L | 0.02 | < 0.01 | -- | -- |
| Ammonia Nitrogen | ug/l | -- | mg/L | -- | < 0.01 | -- | -- |
| Biochemical Oxygen Demand, 5 Day | ug/l | -- | mg/L | -- | 6 | -- | -- |
| Chemical Oxygen Demand | ug/l | -- | mg/L | -- | 49 | -- | -- |
| Chloride | ug/l | -- | mg/L | 120-640 (CWQG FW) | 30.4 | -- | -- |
| Color | color unit | -- | color unit | -- | -- | -- | -- |
| Conductivity | umho/cm | -- | umho/cm | -- | -- | -- | -- |
| Dissolved Organic Carbon | ug/l | -- | mg/L | -- | 29.5 | -- | -- |
| Hardness, Calcium Carbonate | ug/l | -- | mg/L | -- | 56 | -- | -- |
| Nitrate as N | ug/l | -- | mg/L | 13-550 (CWQG FW) | 0.43 | -- | -- |
| Nitrite as N | ug/l | -- | mg/L | 0.06 (CWQG FW) | < 0.05 | -- | -- |
| Nitrogen, Total Kjeldahl | ug/l | -- | mg/L | -- | 0.8 | -- | -- |
| Nitrogen, Nitrate-Nitrite | ug/l | -- | mg/L | -- | -- | -- | -- |
| Nitrogen, Organic | ug/l | -- | mg/L | -- | -- | -- | -- |
| Phosphorus | ug/l | 10-30 ⁽⁷⁾ | mg/L | 0.010 -0.030 ⁽⁷⁾ | 0.11 | -- | -- |
| Sulphate | ug/l | -- | mg/L | 128-429 (BC FW) | 7 | -- | -- |
| Total Dissolved Solids | ug/l | -- | mg/L | -- | 103 | -- | -- |
| Total Organic Carbon | ug/l | -- | mg/L | -- | -- | -- | -- |
| Total Suspended Solids | ug/l | -- | mg/L | -- | -- | -- | -- |
| Turbidity | ntu | -- ⁽⁹⁾ | ntu | -- | -- | -- | -- |
| Metals | | | | | | | |
| Aluminum | ug/l | -- ⁽¹⁰⁾ | mg/L | 0.075 | 1.24 | -- | -- |
| Aluminum, dissolved | ug/l | 15-75 ⁽¹⁰⁾ | mg/L | 0.015-0.075 ⁽¹⁰⁾ | 0.28 | -- | -- |
| Barium | ug/l | -- | mg/L | -- | 0.019 | -- | -- |
| Beryllium | ug/l | 11-1100 | mg/L | 0.011-1.1 ⁽¹¹⁾ | < 0.0001 | -- | -- |
| Boron | ug/l | 200 ⁽¹²⁾ | mg/L | 0.2 ⁽¹²⁾ | 0.007 | -- | -- |
| Cadmium | ug/l | 0.2 ⁽¹³⁾ | mg/L | 0.0002 ⁽¹³⁾ | 0.000036 | -- | -- |
| Calcium | ug/l | -- | mg/L | -- | 14.5 | -- | -- |
| Chromium | ug/l | -- ⁽¹⁴⁾ | mg/L | -- ⁽¹⁴⁾ | 0.004 | -- | -- |
| Cobalt | ug/l | 0.9 | mg/L | 0.0009 | 0.0008 | -- | -- |
| Copper | ug/l | 5 | mg/L | 0.005 | 0.0028 | -- | -- |
| Iron | ug/l | 300 | mg/L | 0.3 | 1.33 | -- | -- |
| Lead | ug/l | 5-25 ⁽¹⁵⁾ | mg/L | 0.005-0.025 ⁽¹⁵⁾ | 0.00092 | -- | -- |
| Magnesium | ug/l | -- | mg/L | -- | 4.73 | -- | -- |
| Manganese | ug/l | -- | mg/L | -- | 0.051 | -- | -- |
| Mercury, dissolved | ug/l | 0.2 ⁽¹⁶⁾ | mg/L | 0.0002 ⁽¹⁶⁾ | < 0.00002 | -- | -- |
| Molybdenum | ug/l | 40 | mg/L | 0.04 | 0.0002 | -- | -- |
| Nickel | ug/l | 25 | mg/L | 0.025 | 0.002 | -- | -- |
| Potassium | ug/l | -- | mg/L | -- | 1.3 | -- | -- |
| Selenium | ug/l | 100 | mg/L | -- | -- | -- | -- |
| Silicon | ug/l | -- | mg/L | -- | 4.72 | -- | -- |
| Silver | ug/l | 0.1 | mg/L | 0.0001 | < 0.0001 | -- | -- |
| Sodium | ug/l | -- | mg/L | -- | 16.8 | -- | -- |
| Strontium | ug/l | -- | mg/L | -- | 0.06 | -- | -- |
| Sulfur | ug/l | -- | mg/L | -- | 1.8 | -- | -- |
| Thallium | ug/l | 0.3 ⁽¹⁷⁾ | mg/L | 0.0003 ⁽¹⁷⁾ | < 0.00005 | -- | -- |
| Tin | ug/l | -- | mg/L | -- | -- | -- | -- |
| Titanium | ug/l | -- | mg/L | -- | 0.060 | -- | -- |
| Vanadium | ug/l | 6 | mg/L | 0.006 | 0.0029 | -- | -- |
| Zinc | ug/l | 30 ⁽¹⁸⁾ | mg/L | 0.03 ⁽¹⁸⁾ | 0.009 | -- | -- |
| Phenols | | | | | | | |
| Phenolics, Total Recoverable | ug/l | 1 ⁽¹⁸⁾ | mg/L | 0.001 ⁽¹⁸⁾ | < 0.001 | -- | -- |
| Field Measurements | | | | | | | |
| Dissolved Oxygen (Field) | ug/l | -- ⁽⁶⁾ | mg/L | -- ⁽⁶⁾ | 8.0 | -- | -- |
| Conductivity (Field) | uS/cm | -- | uS/cm | -- | 270 | -- | -- |
| pH (Field) | - | 8.5 | - | 8.5 | 7.50 | -- | -- |
| Temperature (Field) | deg c | -- ⁽⁹⁾ | deg c | -- ⁽⁹⁾ | 9.4 | -- | -- |

| Footnotes: |
|--|
| Tables should be read in conjunction with the accompanying document. |
| < value = Indicates parameter not detected above laboratory method detection limit. |
| > value = Indicates parameter detected above equipment analytical range. |
| -- Chemical not analyzed or criteria not defined. |
| Grey background indicates exceedances. |
| (1) Provincial Water Quality Objectives (July 1994, reprinted February 1999) |
| (2) Bold Font = Parameter concentration greater than PWQO |
| (3) Monitoring location was dry during this sampling event. No sample was collected. |
| (4) No sample was collected. |
| (5) Alkalinity should not be decreased by more than 25% of the natural concentration. |
| (6) Objective depends on water temperature and biota. Dissolved oxygen concentrations should not be less than the values specified in the PWQO document for cold water biota (e.g. salmonid fish communities) and warm water biota (e.g. centrarchid fish communities). |
| (7) Current scientific evidence is insufficient to develop a firm Objective at this time. Accordingly, the following phosphorus concentrations should be considered as general guidelines which should be supplemented by site-specific studies: To avoid nuisance concentrations of algae in lakes, average total phosphorus concentrations for the ice-free period should not exceed 20 ug/L; A high level of protection against aesthetic deterioration will be provided by a total phosphorus concentration for the ice-free period of 10 ug/L or less. This should apply to all lakes naturally below this value; Excessive plant growth in rivers and streams should be eliminated at a total phosphorus concentration below 30 ug/L. |
| (8) (1) General: The natural thermal regime of any body of water shall not be altered so as to impair the quality of the natural environment. In particular, the diversity, distribution and abundance of plant and animal life shall not be significantly changed. (2) Waste Heat Discharge: (a) Ambient Temperature Changes: The temperature at the edge of a mixing zone shall not exceed the natural ambient water temperature at a representative control location by more than 10°C (18°F). However, in special circumstances, local conditions may require a significantly lower temperature difference than 10°C (18°F). Potential dischargers are to apply to the MOEE for guidance as to the allowable temperature rise for each thermal discharge. This ministry will also specify the nature of the mixing zone and the procedure for the establishment of a representative control location for temperature recording on a case-by-case basis. (b) Discharge Temperature Permitted: The maximum temperature of the receiving body of water, at any point in the thermal plume outside a mixing zone, shall not exceed 30°C (86°F) or the temperature of a representative control location plus 10°C (18°F) or the allowed temperature difference, whichever is the lesser temperature. These maximum temperatures are to be measured on a mean daily basis from continuous records. (c) Taking and Discharging of Cooling Water: Users of cooling water shall meet both the Objectives for temperature outlined above and the "Procedures for the Taking and Discharge of Cooling Water" as outlined in the MOEE publication Deriving Receiving-Water Based, Point-Source Effluent Requirements for Ontario Waters(1994). |
| (9) Suspended matter should not be added to surface water in concentrations that will change the natural Secchi disc reading by more than 10 percent. |
| (10) At pH 4.5 to 5.5 the Interim PWQO is 15 µg/L based on inorganic monomeric aluminum measure in clay-free samples; At pH > 5.5 to 6.5, no condition should be permitted which would increase the acid soluble inorganic aluminum concentration in clay-free samples to more than 10% above natural background concentrations for waters representative of that geological area of the Province that are unaffected by man-made inputs. At pH > 6.5 to 9.0, the Interim PWQO is 75 µg/L based on total aluminum measured in clay-free samples. If natural background aluminum concentrations in water bodies unaffected by man-made inputs are greater than the numerical Interim PWQO (above), no condition is permitted that would increase the aluminum concentration in clay-free samples by more than 10% of the natural background level. Note: pH values of < 6.5 and > 8.5 are outside the range considered acceptable by the PWQO for pH. See the Scientific Criteria Document for Development of Provincial Water Quality Objectives and Guidelines - Aluminum for a discussion of analytical procedures. |
| (11) If hardness as CaCO ₃ < 75 mg/L, PWQO = 11 µg/L; if hardness as CaCO ₃ > 75 mg/L, PWQO = 1100 µg/L. |
| (12) See Section 1.2.3. of PWQO. This Interim PWQO was set for emergency purposes based on the best information readily available. Employ due caution when applying this value. |
| (13) An Interim PWQO also exists for this parameter. See Section 1.10 of the PWQO - Where both a PWQO and an Interim PWQO exist. |
| (14) PWQO values exist for Cr(III) and Cr(VI) |
| (15) If alkalinity as CaCO ₃ < 20 mg/L, PWQO = 5 µg/L; if alkalinity as CaCO ₃ from 20 to 40 mg/L, PWQO = 10 µg/L; if alkalinity as CaCO ₃ from 40 to 80 mg/L, PWQO = 20 µg/L; if alkalinity as CaCO ₃ > 80 mg/L, PWQO = 25 ug/L. An Interim PWQO also exists for this parameter. See Section 1.10 of the PWQO - Where both a PWQO and an Interim PWQO exist. |
| (16) In a filtered water sample. |
| (17) See Section 1.2.2. of PWQO. This Interim PWQO is currently under development. The value is subject to change upon publication by MOEE. |
| (18) Determined by the total reactive phenols test - the 4-AAP (4-amino-antipyrine) test. This objective should be used primarily as a screening tool. The isomer specific PWQOs for various phenolics should be employed where possible. |
| (19) BOD Analysis: reported >114 mg/L on the highest dilution factor, the sample dilutions werent sufficient enough to obtain a valid result. Results should be used with discretion. |
| (20) Metals Analysis: Detection Limit was raised due to matrix interferences. |
| (21) Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly. |
| (22) No result(s) available. |
| (23) Parameter was not measured. |
| (24) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly. |
| (25) Monitoring location was frozen during this sampling event. No sample was collected. |
| (26) Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly. |
| (27) Result was obtained from the high level Total P method, as sample result was significantly higher than analytical range of the low level method. |
| (28) Insufficient water for sample collection or analysis at this monitoring location during sampling event. |
| (29) SL |
| (30) Nitrite/Nitrate: Due to the colour interferences, sample required dilution. Detection limits were adjusted accordingly. |
| Data prior to 2015 by others |
| Data base adapted from GAL 2015 |

APPENDIX J

Graphs of Concentration Trends at Selected Trigger Wells

Chart J1 - P6-91 (Leachate impacted well)

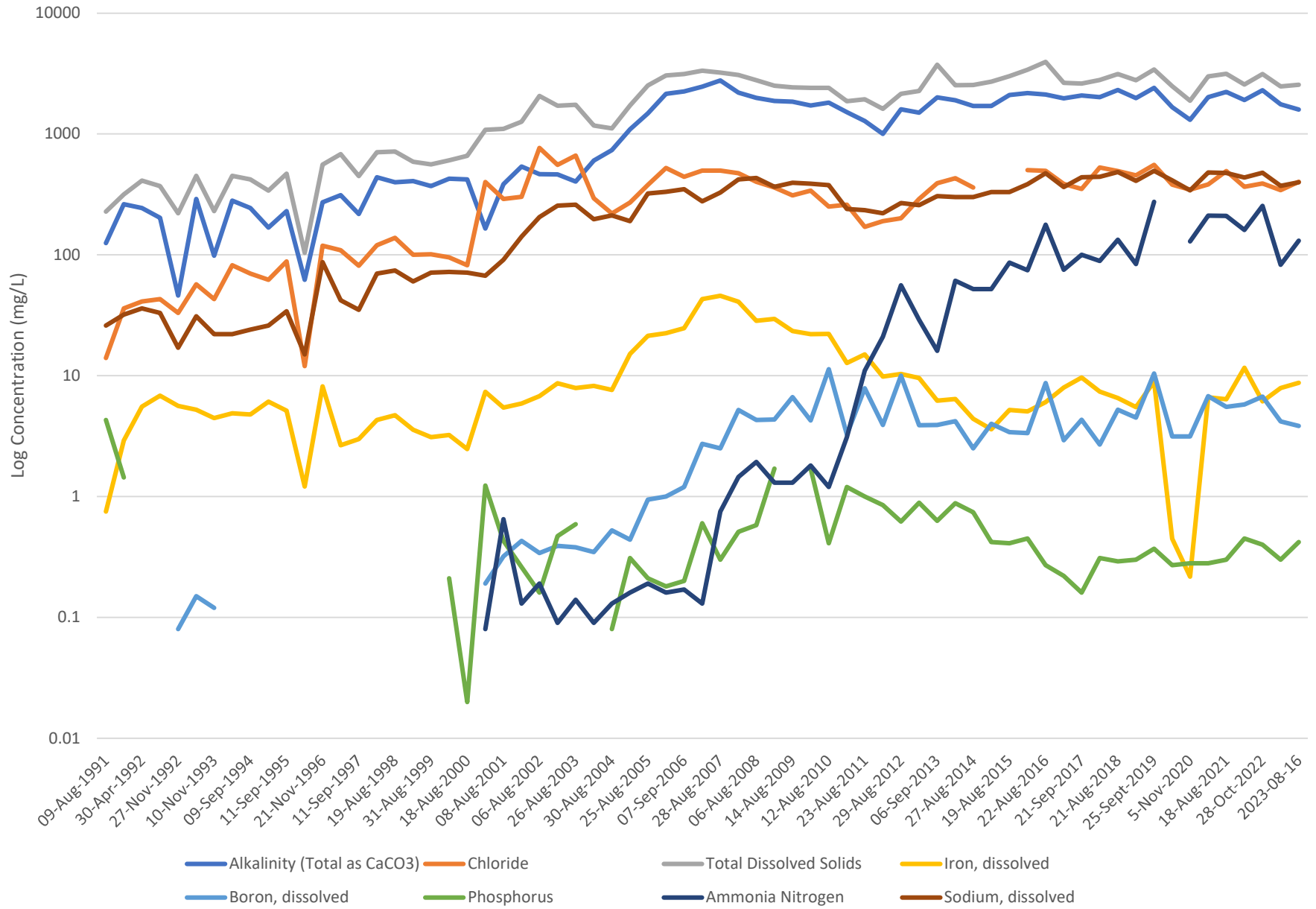


Chart J2- G26-94 (Background)

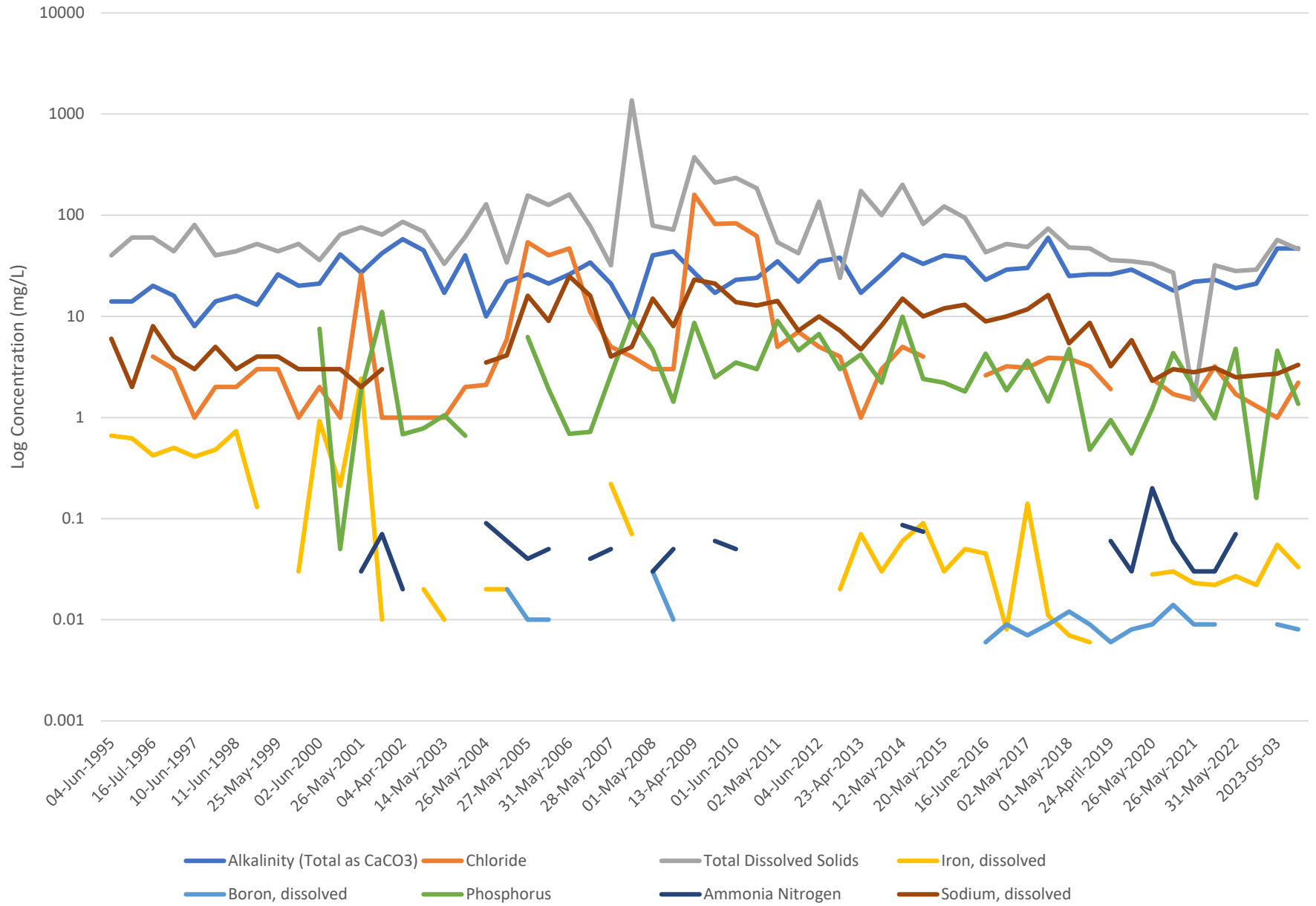


Chart J3 - G29-97 (Western limit)

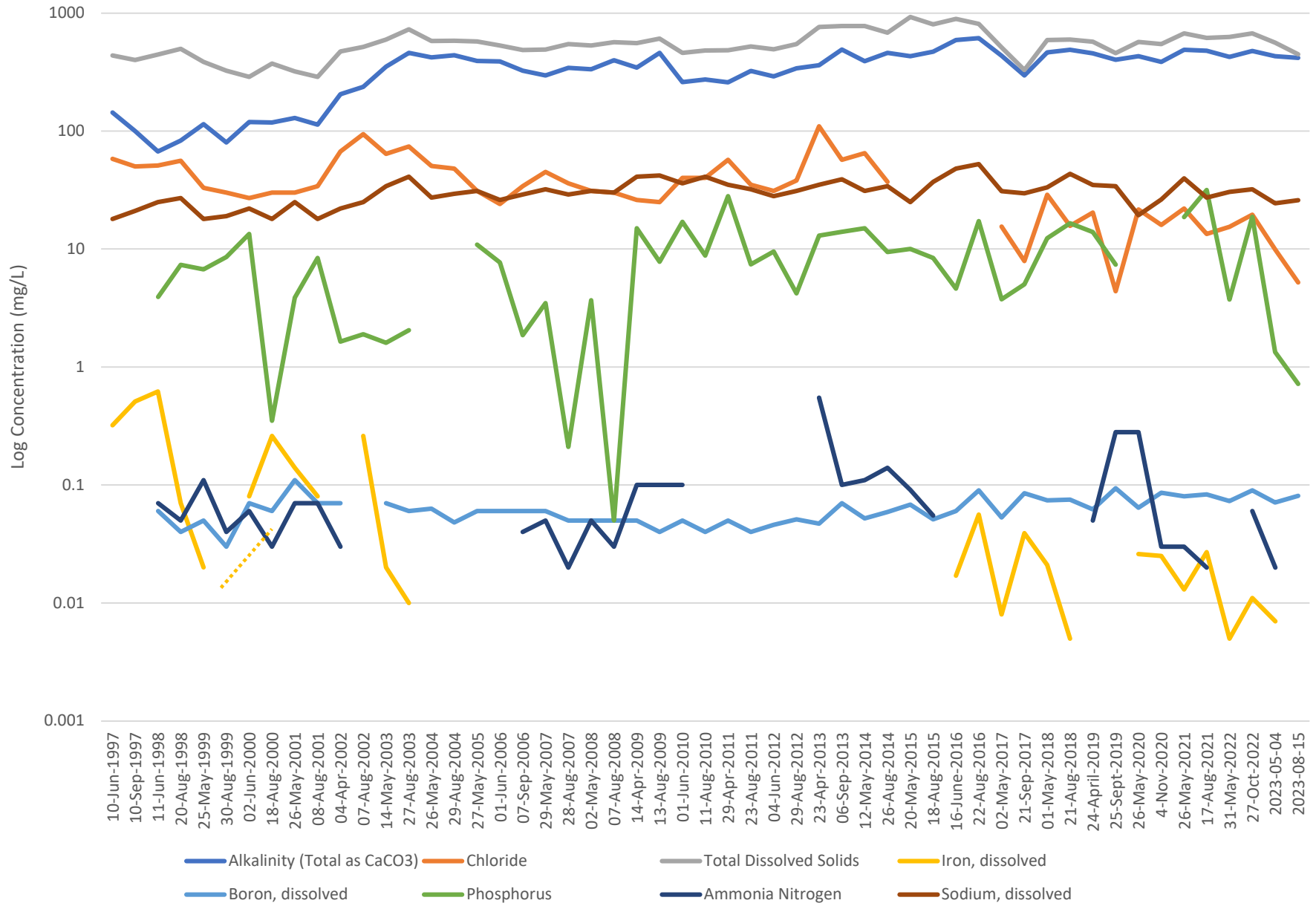


Chart J4 - G37-01 (Southwestern area)

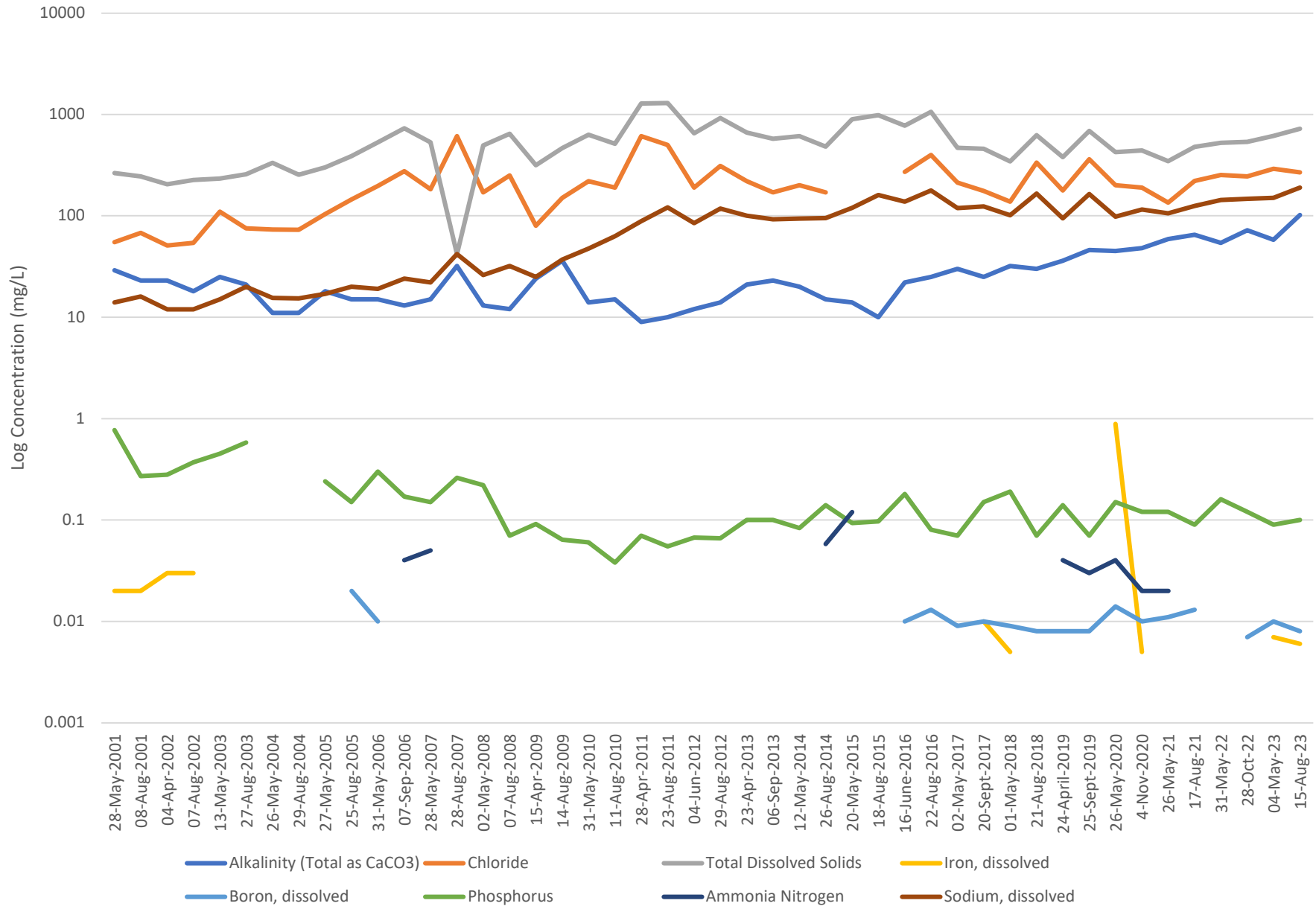
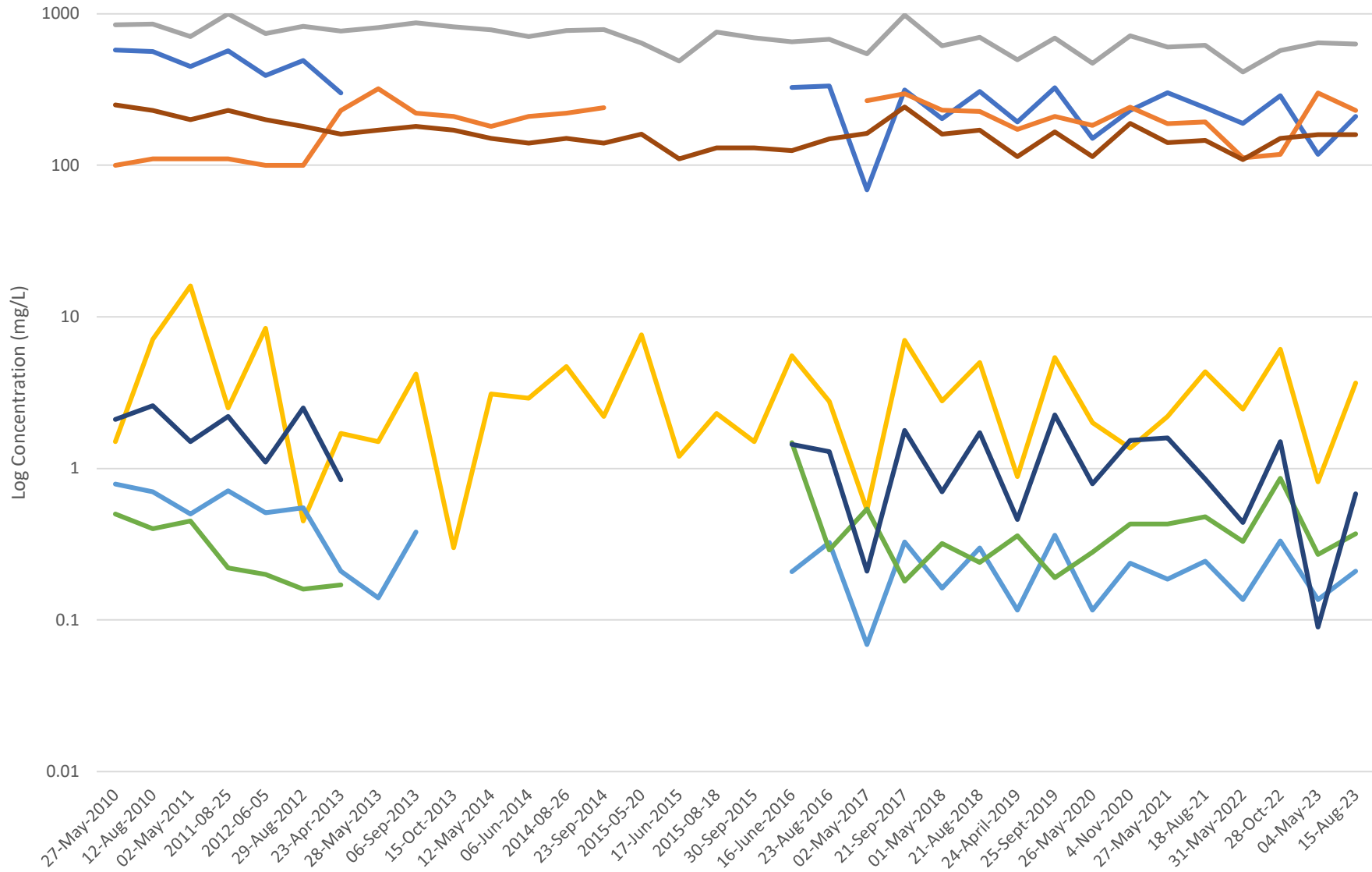


Chart J5 - G42-10 (Southeastern limit)



- Alkalinity (Total as CaCO3)
- Chloride
- Total Dissolved Solids
- Iron, dissolved
- Boron, dissolved
- Phosphorus
- Ammonia Nitrogen
- Sodium, dissolved

Chart J6 - G43-11 (northeastern limit)

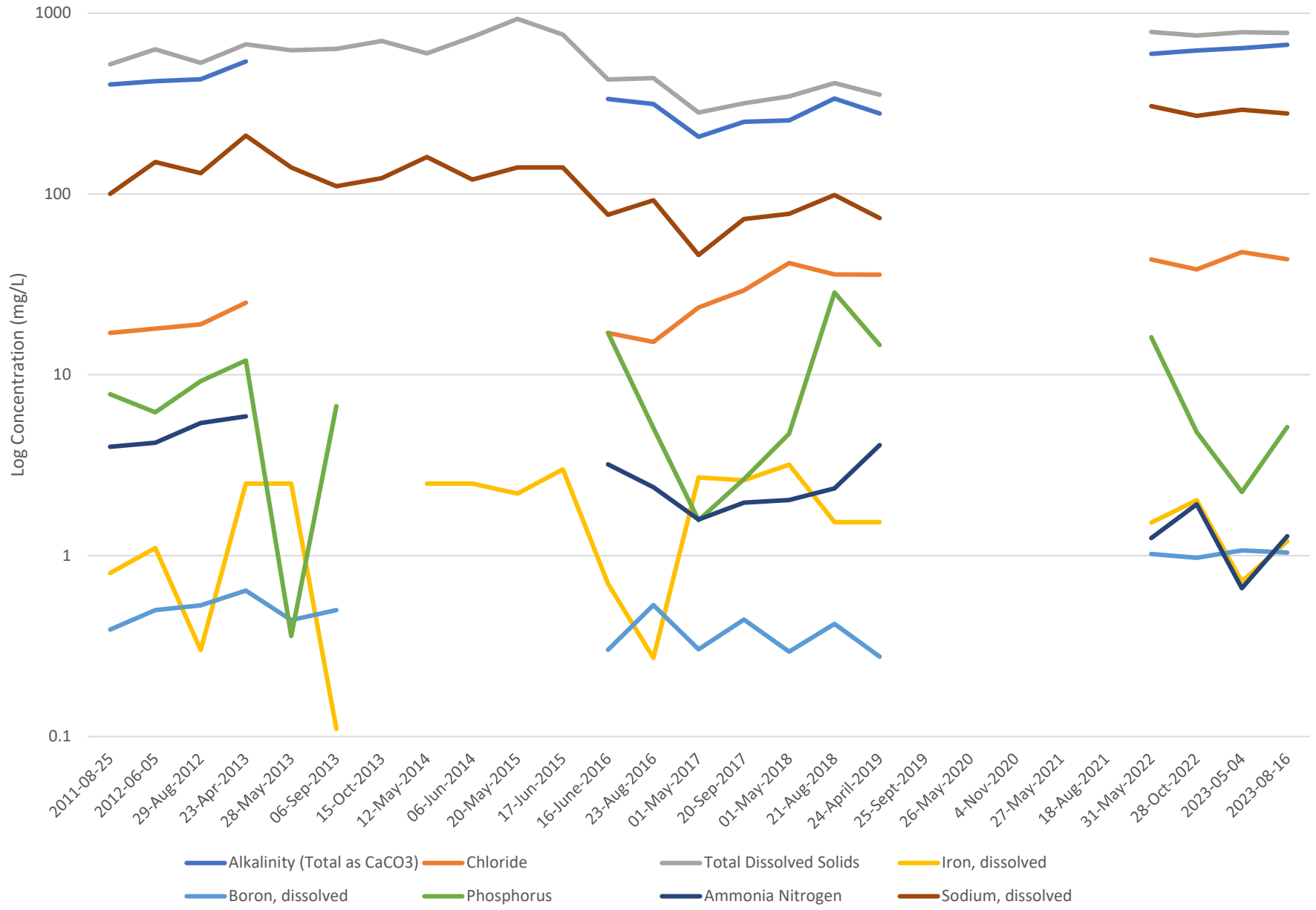


Chart J7 - G12-92 (South of site)

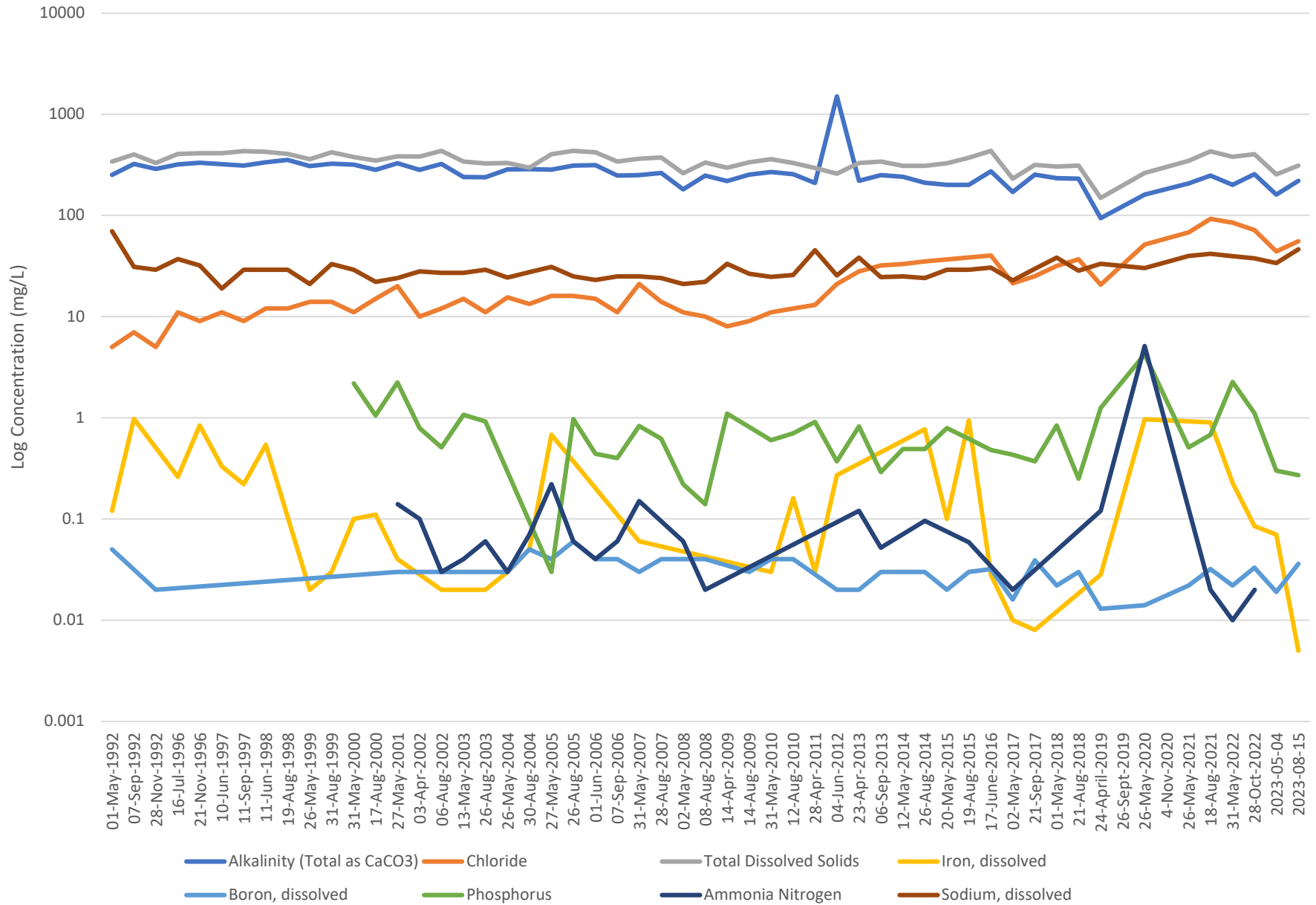


Chart J8 - G18-92 (Northern area)

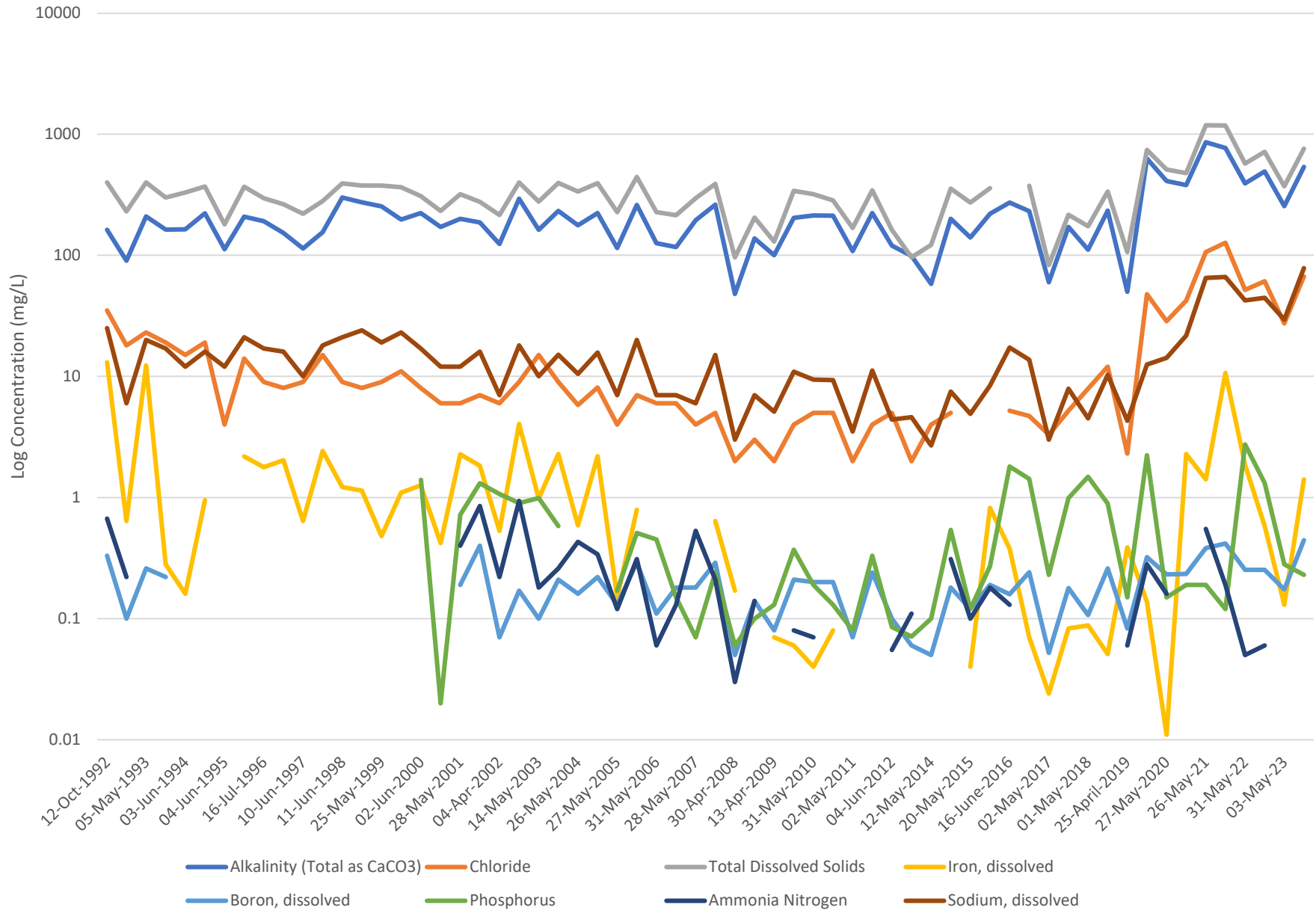
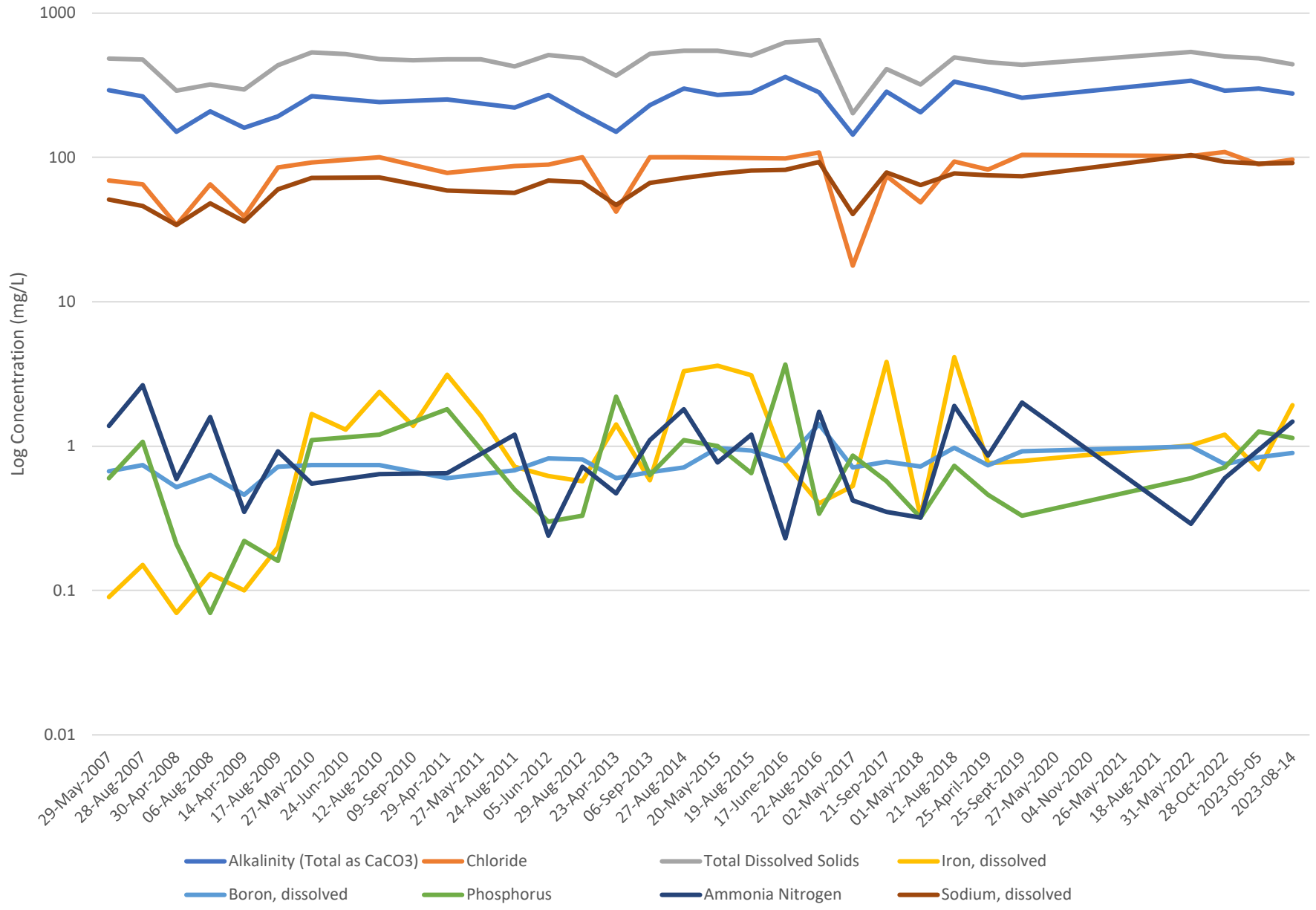


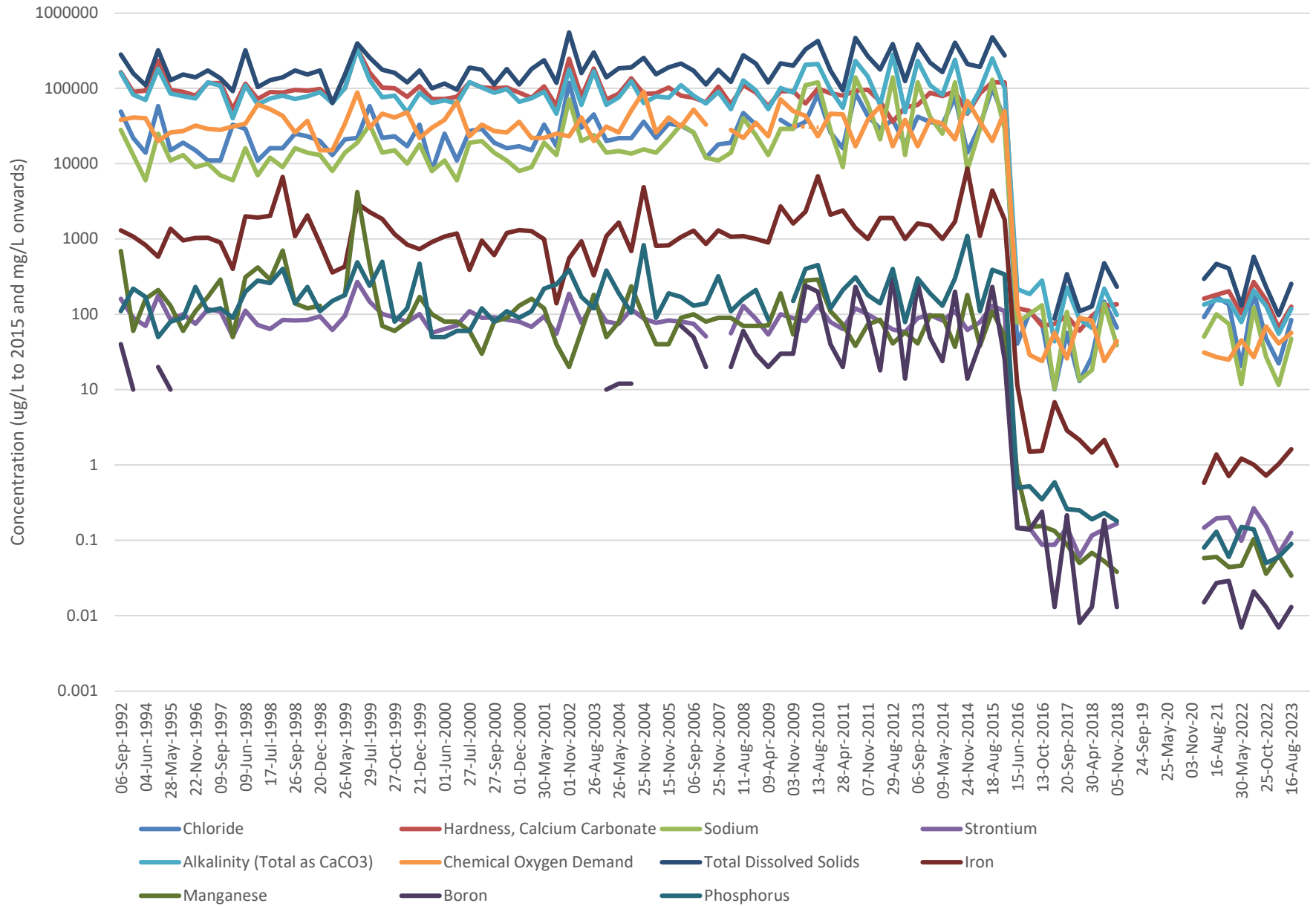
Chart J9 - G39-07 (Downgradient - East of Pond)



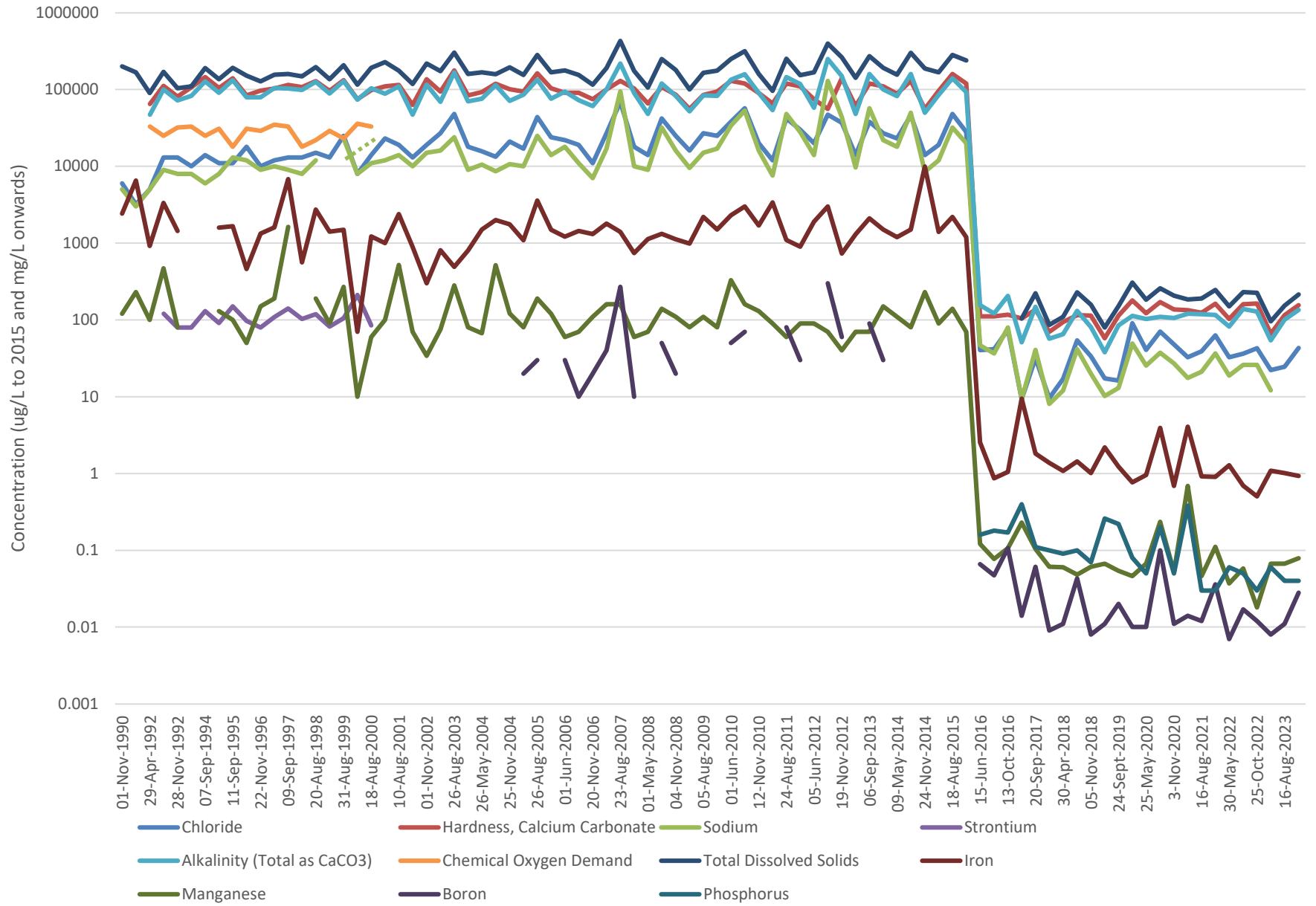
APPENDIX K

Graphs of Concentration Trends at Selected Surface Water Locations

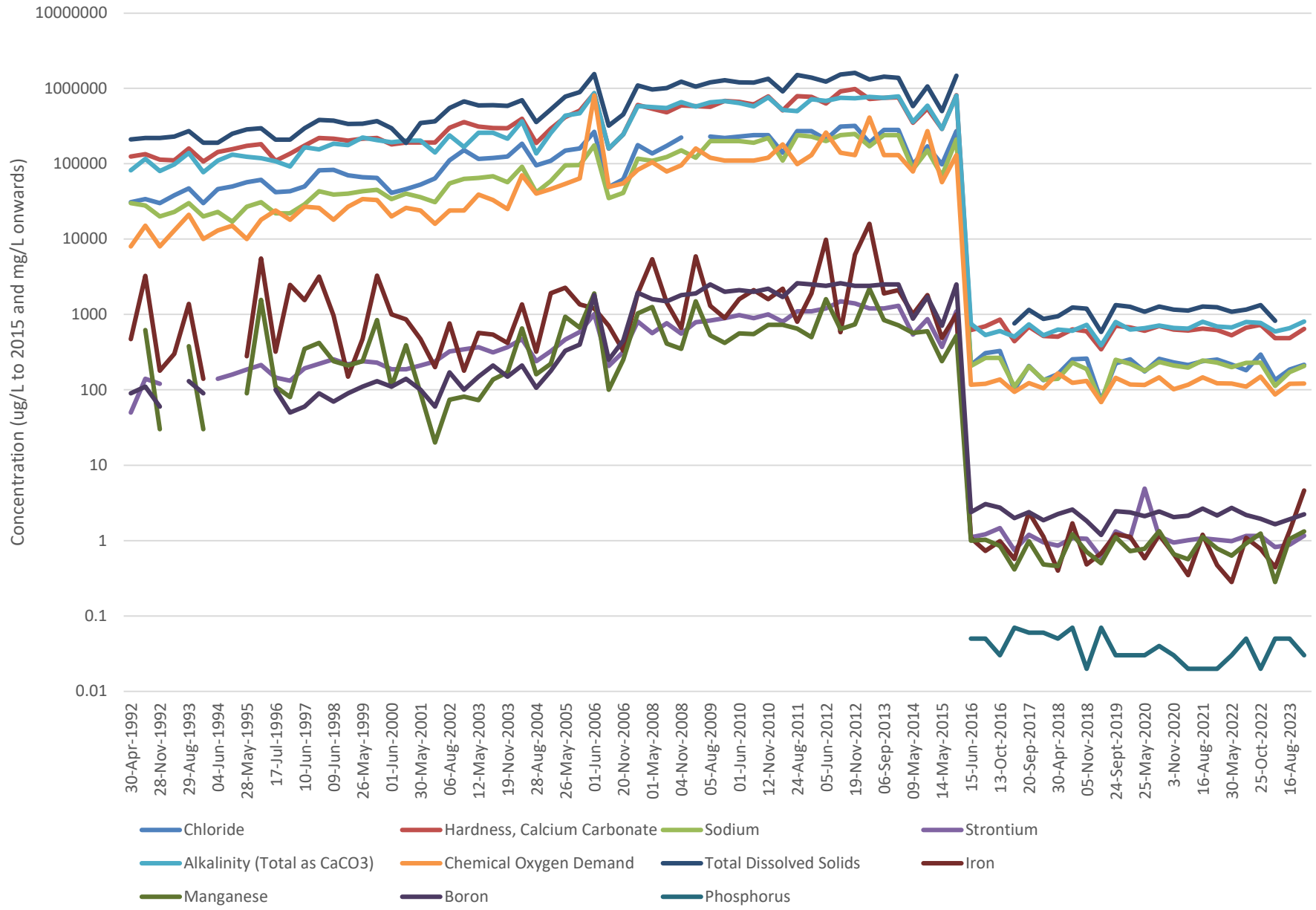
Graph K-1: Trend GS17



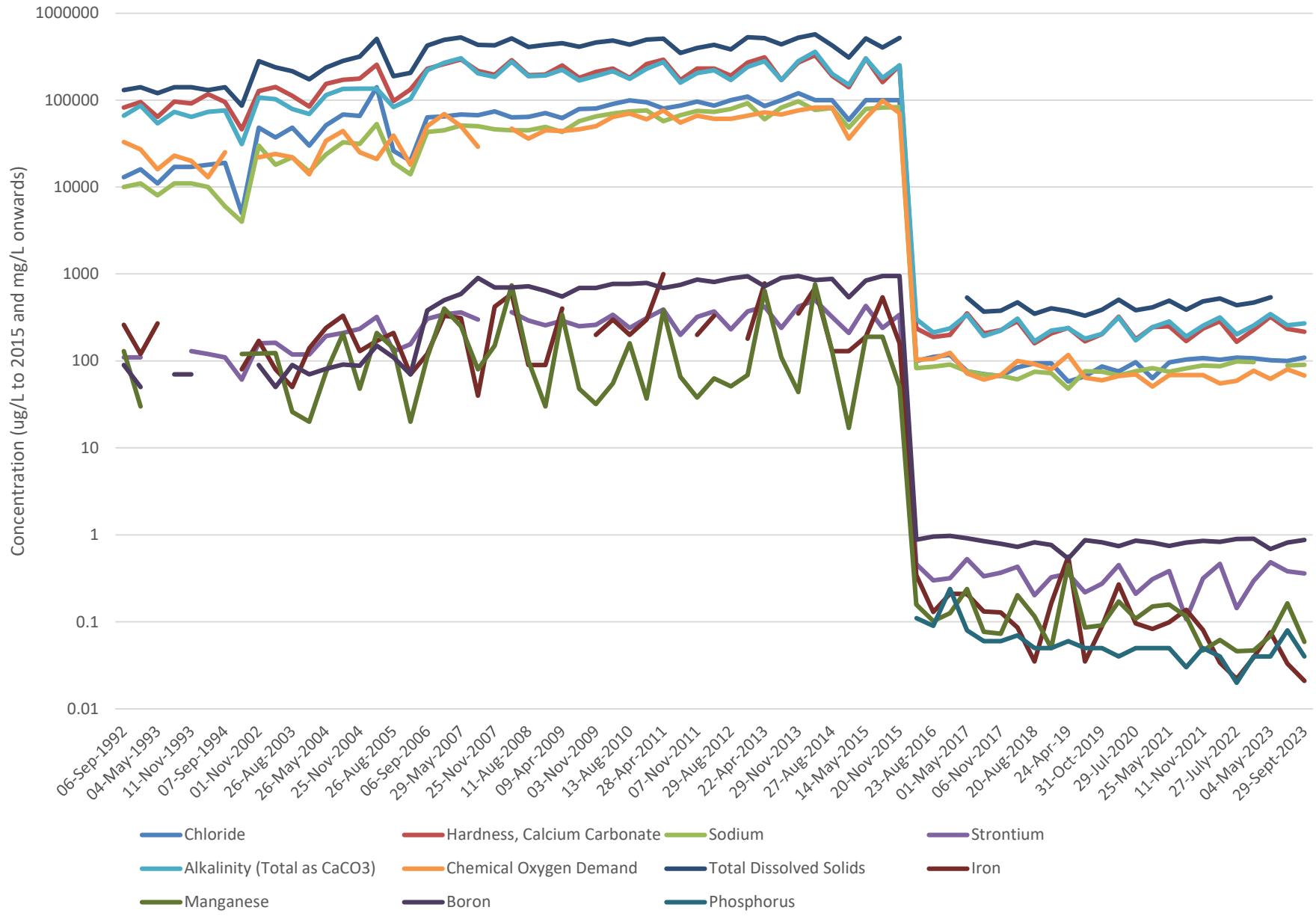
Graph K2: Trend S1



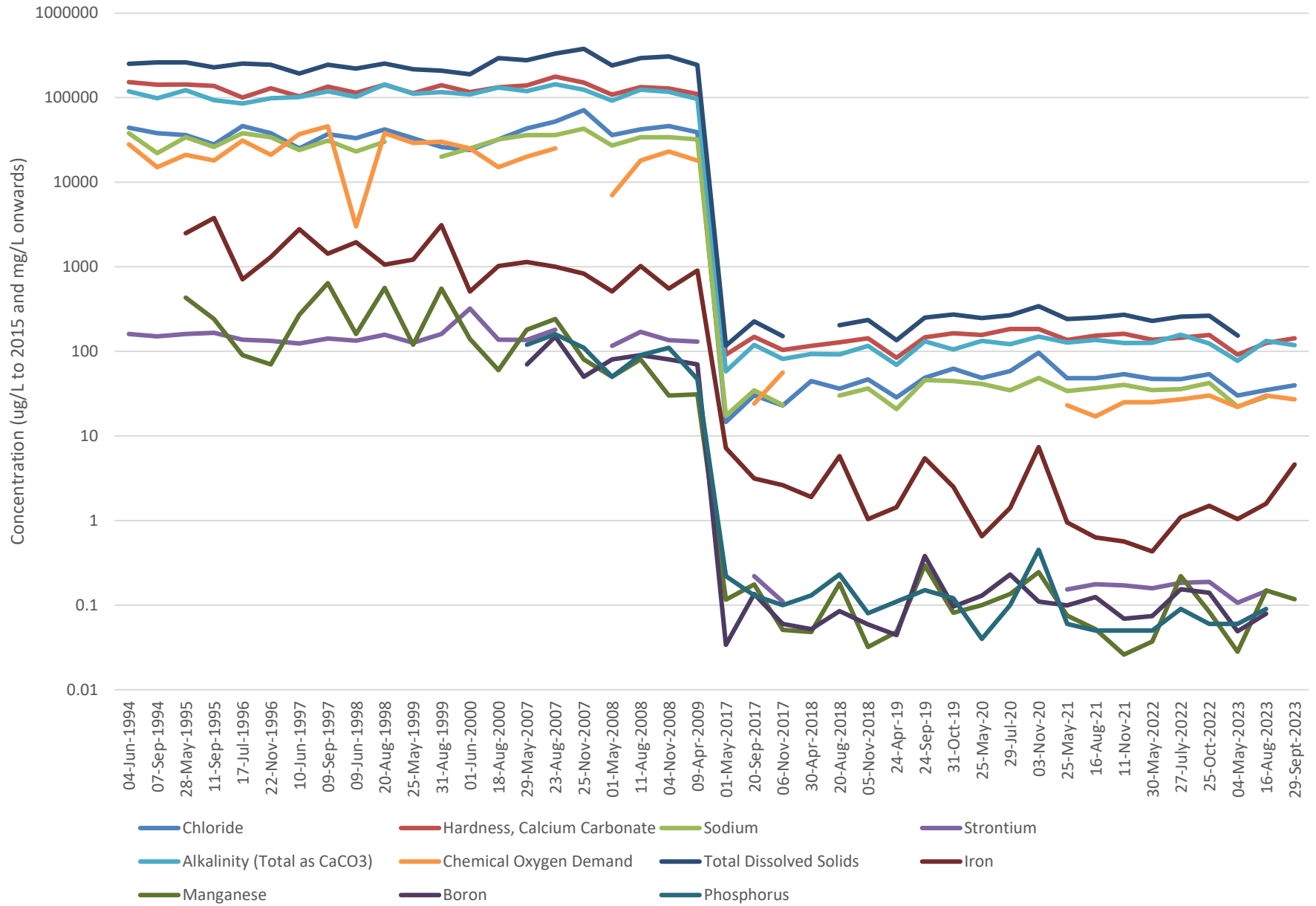
Graph K3: Trend GS11



Graph K4: Trend GS15



Graph K5: Trend GS20



APPENDIX L
Photo Album



S1



S2



GS 11



S3



GS 6



GS 8



GS 12



GS 15



GS 20



GS 17



GS 21



GS 22



GS 23



P1-91



P4-90



P5B-91 / P5A-91



P2-90



P6-91



P7-91



P7-91 (August)



G9 Medium



G9 Deep & Shallow



G10-92 (May 2022)



G8-92



G8-92 (August)



G12-92



G13-92



G15-92



G17-92



G18-92



G33-98



G20-92



G21-94



G23-94



G25-94



G26-94



G27-97



G28-97



G29-97



G30-97



G31-98 (D&S)



G32-98 (D&S)



G36-01



G37-01



G38-03



G39-07



G40-07 (August)



G42-10

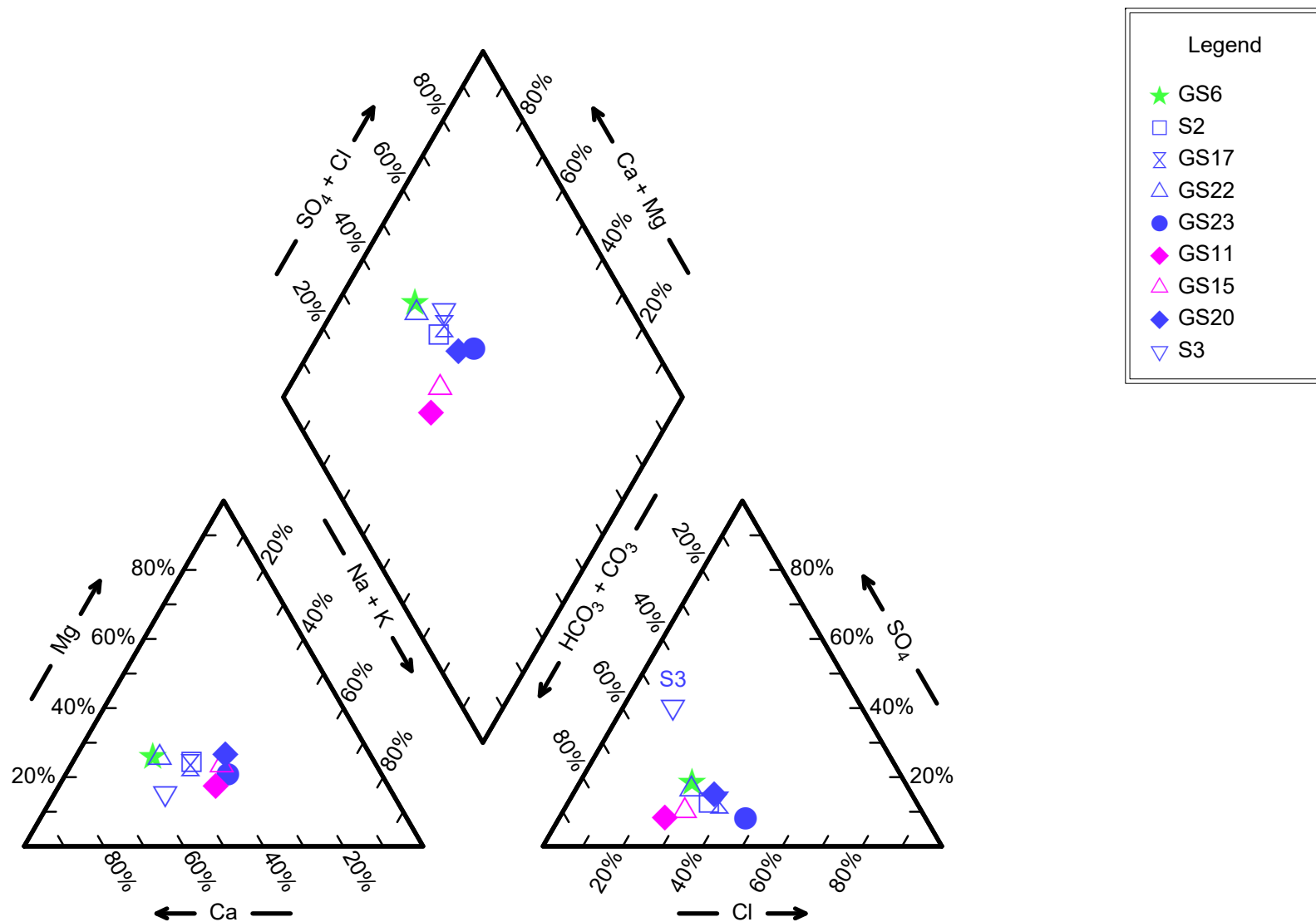


G43-11

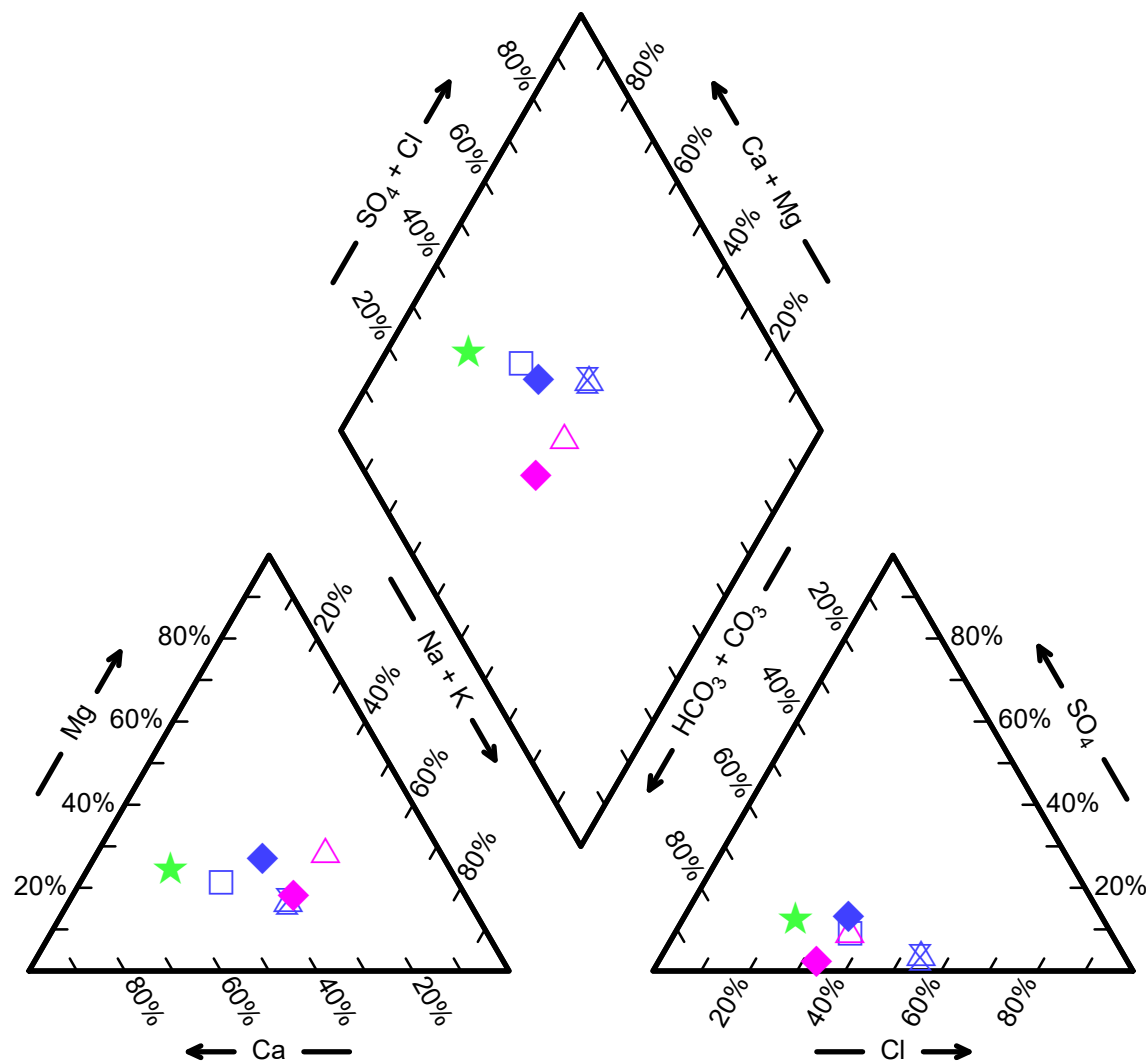
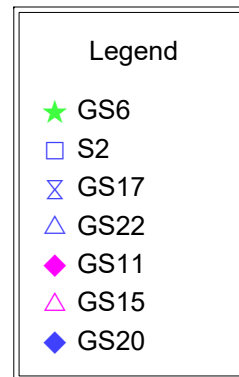
APPENDIX M

Surface Water Profiles (Piper Diagram)

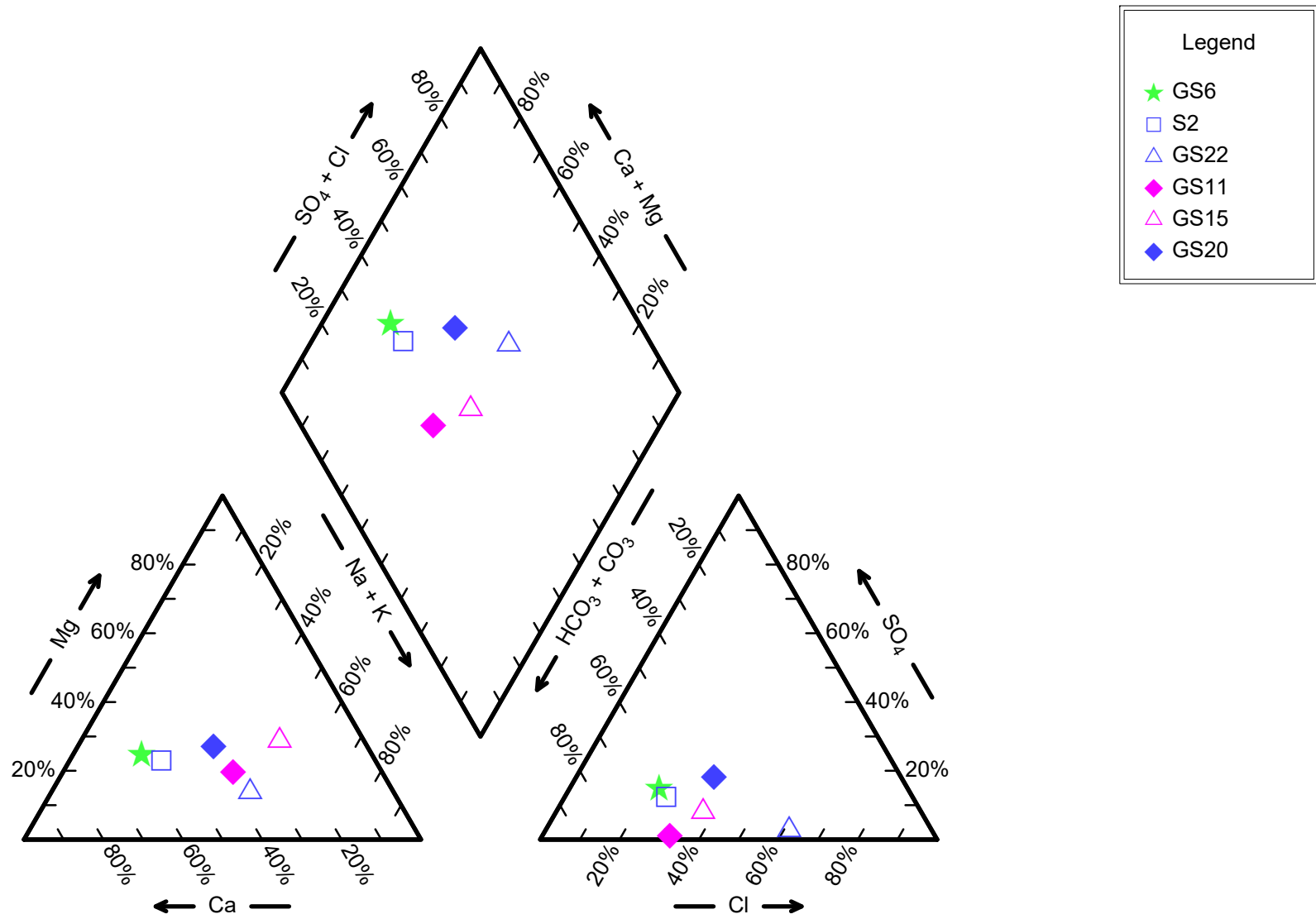
Clarence Surface Water May 2023



Clarence Surface Water August 2023



Clarence Surface Water September 2023



APPENDIX N

Surface Water Compliance Evaluation

| | | Background Western Stream GS6 | Ambient Conditions Western Ditch S1 | Ambient Conditions Western Ditch S2 | Ambient Conditions Western Ditch GS8 | Ambient Conditions Western Ditch GS17 |
|--------------------------------|-----------------|-------------------------------------|---|---|--|---|
| May 2023 | 75th percentile | 04-May-2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 |
| Ammonia, unionized (Field) (1) | 0.02 | < 0.01 | < 0.01 | < 0.01 | 0.0001 | < 0.01 |
| Phosphorus | 0.08 | 0.02 | 0.06 | 0.14 | 0.21 | 0.06 |
| Boron | 0.2 | 0.006 | 0.008 | 0.009 | 0.009 | 0.007 |
| Iron | 1.5 | 0.732 | 1.09 | 2.17 | 0.283 | 1.03 |
| | | Background Western Stream GS6 | Ambient Conditions Western Ditch S1 | Ambient Conditions Western Ditch S2 | Ambient Conditions Western Ditch GS8 | Ambient Conditions Western Ditch GS17 |
| August 2023 | 75th percentile | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 |
| Ammonia, unionized (Field) (1) | 0.02 | 0.0005 | <0.01 | <0.01 | 0.0004 | 0.0011 |
| Phosphorus | 0.08 | 0.04 | 0.04 | 0.08 | 0.06 | 0.09 |
| Boron | 0.2 | 0.012 | 0.011 | 0.014 | 0.016 | 0.013 |
| Iron | 1.5 | 1.49 | 1.01 | 1.36 | 0.744 | 1.62 |
| | | Background Western Stream GS6 | Ambient Conditions Western Ditch S1 | Ambient Conditions Western Ditch S2 | Ambient Conditions Western Ditch GS8 | Ambient Conditions Western Ditch GS17 |
| September 2023 | 75th percentile | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 |
| Ammonia, unionized (Field) (1) | 0.02 | <0.05 | <0.01 | <0.01 | <0.01 | -- |
| Phosphorus | 0.08 | 0.04 | 0.04 | 0.05 | 0.06 | -- |
| Boron | 0.2 | 0.010 | 0.028 | 0.021 | 0.016 | -- |
| Iron | 1.5 | 0.557 | 0.932 | 0.833 | 1.09 | -- |

1. Unionized ammonia is calculated from laboratory concentrations of ammonia nitrogen, field pH and field temperature (using the PWQO methodology) when ammonia nitrogen was reported above its detection limit. Otherwise, the reported less than detection limit values of ammonia nitrogen are shown.

2. Detection limit of ammonia nitrogen exceeded the PWQO. Replacing the detection limit value in the unionized ammonia, the resulting concentration is 0.0007 and below the PWQO.

| | Ambient Conditions Western Ditch GS22 | Ambient Conditions Western Ditch GS23 | Moderate Impact On-site pond GS11 | Moderate Impact On-site pond GS12 |
|--------------------------------|---|---|---|---|
| May 2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 |
| Ammonia, unionized (Field) (1) | < 0.01 | < 0.01 | 0.2 | 0.15 |
| Phosphorus | 0.04 | 0.11 | 0.05 | 0.07 |
| Boron | 0.007 | 0.007 | 1.650 | 0.710 |
| Iron | 0.848 | 1.33 | 0.441 | 0.106 |
| | Ambient Conditions Western Ditch GS22 | Ambient Conditions Western Ditch GS23 | Moderate Impact On-site pond GS11 | Moderate Impact On-site pond GS12 |
| August 2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 |
| Ammonia, unionized (Field) (1) | 0.0016 | -- | 0.06 | 0.03 |
| Phosphorus | 0.08 | -- | 0.05 | 0.11 |
| Boron | 0.011 | -- | 1.920 | 0.784 |
| Iron | 1.13 | -- | 1.34 | 0.013 |
| | Ambient Conditions Western Ditch GS22 | Ambient Conditions Western Ditch GS23 | Moderate Impact On-site pond GS11 | Moderate Impact On-site pond GS12 |
| September 2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 |
| Ammonia, unionized (Field) (1) | <0.05(2) | -- | 0.0095 | 0.021 |
| Phosphorus | 0.09 | -- | 0.03 | 0.04 |
| Boron | 0.010 | -- | 2.240 | 0.893 |
| Iron | 0.813 | -- | 4.63 | 0.029 |

1. Unionized ammonia is calculated from laboratory concentrations of ammonia nitrogen, field pH and field temperature (using the PWQO methodology) when ammonia nitrogen was reported above its detection limit. Otherwise, the reported less than detection limit values of ammonia nitrogen are shown.

2. Detection limit of ammonia nitrogen exceeded the PWQO. Replacing the detection limit value in the unionized ammonia, the resulting concentration is 0.0007 and below the PWQO.

| | Moderate Impact On-site pond GS15 | Ambient Conditions Eastern Ditch GS20 | Ambient Conditions Eastern Ditch GS21 | Not Impacted North Waste Limit S3 |
|--------------------------------|---|---|---|---|
| May 2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 | 04-May-2023 |
| Ammonia, unionized (Field) (1) | 0.116 | < 0.01 | < 0.01 | 0.0001 |
| Phosphorus | 0.04 | 0.06 | 0.04 | 0.08 |
| Boron | 0.689 | 0.049 | 0.025 | 0.006 |
| Iron | 0.076 | 1.04 | 0.840 | 0.382 |
| | Moderate Impact On-site pond GS15 | Ambient Conditions Eastern Ditch GS20 | Ambient Conditions Eastern Ditch GS21 | Dry North Waste Limit S3 |
| August 2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 | 16-Aug-2023 |
| Ammonia, unionized (Field) (1) | 0.006 | 0.0001 | 0.0013 | -- |
| Phosphorus | 0.08 | 0.09 | 0.08 | -- |
| Boron | 0.816 | 0.079 | 0.046 | -- |
| Iron | 0.033 | 1.58 | 0.072 | -- |
| | Moderate Impact On-site pond GS15 | Ambient Conditions Eastern Ditch GS20 | Ambient Conditions Eastern Ditch GS21 | Dry North Waste Limit S3 |
| September 2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 | 29-Sept-2023 |
| Ammonia, unionized (Field) (1) | 0.017 | 0.0001 | 0.0008 | -- |
| Phosphorus | 0.04 | 0.20 | 0.18 | -- |
| Boron | 0.877 | 0.090 | 0.059 | -- |
| Iron | 0.021 | 4.59 | 5.05 | -- |

1. Unionized ammonia is calculated from laboratory concentrations of ammonia nitrogen, field pH and field temperature (using the PWQO methodology) when ammonia nitrogen was reported above its detection limit. Otherwise, the reported less than detection limit values of ammonia nitrogen are shown.
2. Detection limit of ammonia nitrogen exceeded the PWQO. Replacing the detection limit value in the unionized ammonia, the resulting concentration is 0.0007 and below the PWQO.