2012 ANNUAL REPORT

ROUND LAKE WASTE DISPOSAL SITE
(A412303)

TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS
COUNTY OF RENFREW, ONTARIO

Prepared for

THE CORPORATION OF THE
TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS

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EXECUTIVE SUMMARY

This report has been prepared to document the results of the 2012 environmental monitoring program for the Township of Killaloe, Hagarty and Richards' Round Lake waste disposal site, located on Lot 27, Concession III, in the geographic Township of Richards, amalgamated Township of Killaloe, Hagarty and Richards. The site is located approximately 14 kilometres north of the Village of Killaloe, and is accessed by Sunrise Road which extends west from County Road 58.

The Round Lake waste disposal site operates in accordance with Amended Environmental Compliance Approval A412303 dated November 30, 2012, for the transfer of municipal solid waste and Blue Box recyclables generated within the Township of Killaloe, Hagarty and Richards. The site is currently licensed in accordance with the Environmental Compliance Approval for a 1.62 hectare approved waste disposal area, within a property area of 3.5 hectares, and a 1.33 hectare parcel of land designated for contaminant attenuation zone purposes.

Historically, the direction of groundwater flow within the shallow overburden at the Round Lake site has been to the north and northeast, generally towards the Sherwood River northeast of the site. In 2012, groundwater elevation data obtained from the on-site groundwater monitoring wells correlated with the previous data sets and confirmed the north and northeast flow direction. In addition, a component of groundwater flow in the vicinity of monitors BH4 and BH95-11 was determined to be to the south and southeast. In the spring of 2012, average horizontal gradients from the vicinity of the waste mound, and to the north and northeast of the waste mound, were calculated to be approximately 0.001 and 0.015, respectively. Similarly, in the fall of 2012, average horizontal gradients from the vicinity of the waste mound, and to the north and northeast of the waste mound, were calculated to be approximately 0.001 and 0.002, respectively.

Groundwater quality from the monitoring wells immediately downgradient of the waste mound, and monitors to the northeast is interpreted to be impacted from landfill-related factors, with monitoring wells BH-2S and BH-2D exhibiting generally higher parameter concentrations than observed from the other wells in close proximity to the waste mound. The position and orientation of the leachate plume is interpreted to be consistent with historical results, and most parameter concentrations downgradient of the site are interpreted to be either stable or to have decreasing trends. There were no volatile organic compound Ontario Drinking Water Standards criteria exceedances observed during the 2012 groundwater monitoring program.

There were no Reasonable Use Concept exceedances of the compliance evaluation parameters in 2012 using the 75% Reasonable Use Concept criteria values for barium, boron, chloride, chromium and volatile organic compounds, as specified in Schedule "C" of Provisional Certificate of Approval A412303, at downgradient monitors BH-8, BH95-9, BH01-13D, and BH01-14. Based on the results, the Trigger Mechanism described in Schedule "C" of the Provisional Certificate of Approval was not activated, and the Round Lake site is interpreted to be in conformance with Guideline B-7 in 2012.

Based on Township of Killaloe, Hagarty and Richards records, approximately 2,566 vehicles visited the Round Lake site in 2012, with approximately 3,336 bags of waste received for transfer to the Township's Killaloe site for disposal. Additionally, based on Township of Killaloe, Hagarty and Richards records 3,317 bags of commingled containers (tin/aluminum/plastic/glass), and 591 bags of mixed fibres were received at the Round Lake site in 2012 and transferred to the Township's Killaloe site for pickup by Beaumen Waste Management Systems.

Recycling tonnage records provided by Beaumen Waste Management Systems for the Township of Killaloe, Hagarty and Richards indicate that approximately 190 tonnes of Blue Box recyclables were collected from the Township of Killaloe, Hagarty and Richards' Killaloe, Round Lake and Red Rock waste disposal sites in 2012. Blue Box recyclables contributing to this total included approximately 61.33 tonnes of commingled containers (tin/aluminum/plastic/glass), 74.02 tonnes of mixed fibres, and 54.65 tonnes of old corrugated cardboard. Blue Box recyclables from curbside collection within the Village of Killaloe, and Blue Box recyclables transferred from the Township of Killaloe, Hagarty and Richards' Round Lake and Red Rock waste disposal sites are included in the Blue Box recycling tonnages provided by Beaumen Waste Management Systems. Approximately 11.91 tonnes of household organics were also collected within the Township of Killaloe, Hagarty and Richards from the depots at the Killaloe and Round Lake waste disposal sites in 2012 and processed by Ottawa Valley Waste Recovery Centre in Pembroke, Ontario.

In 2012, the Township of Killaloe, Hagarty, and Richards completed construction of a permanent Blue Box recycling transfer station at the Round Lake Waste Disposal Site.

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1.0 INTRODUCTION

1.1 SITE INFORMATION

The Round Lake waste disposal site operates as a municipal solid waste transfer station with mobile waste and Blue Box recycling facilities under Provisional Certificate of Approval (PC of A; A412303) as issued on April 2, 1980 and recently amended and issued as an amended Environmental Compliance Approval (ECA) (A412303) on November 30, 2012 (Appendix A). The Round Lake site is located approximately 0.5 kilometres (km) west of County Road No. 58 on Part Lot 27, Concession III, in the geographic Township of Richards, amalgamated Township of Killaloe, Hagarty and Richards (Township) in Renfrew County. The Universal Transverse Mercator (UTM) coordinates at the site entrance gate relative to the North American Datum (NAD83) are 299418.0 metres (m) East, 5055794.0 m North, in Zone 18T (Google Earth, 2013). The site is accessed from Sunrise Road (Figure 1), and is situated on Township land.

1.2 BACKGROUND

The Round Lake waste disposal site has been in operation since 1967, and is currently approved to accept waste, Blue Box recyclables, and household organics from the Township.

Landfilling operations at the Round Lake site ceased in 2003, following amendments to the site's Provisional Certificate of Approval (PC of A; April 8, 2003), and intermediate cover was applied over the landfilling area of the site. Since June 2003, the Round Lake site has been interim-closed, as per Condition 25 of the amended PC of A (April 8, 2003). Since June 2003, the Round Lake site has operated as a mobile waste and Blue Box recycling transfer station.

On September 4, 2009, the Ontario Ministry of Environment (MOE) issued an amended PC of A for the Round Lake waste disposal site, recognizing the establishment of an organic waste depot facility as part of waste transfer operations. The organic waste depot facility includes two (2) specialized MOLOK containers for the on-site collection and transfer of organic waste with a total storage capacity of 1.6 cubic metres (m^3; Appendix A).

Based on the Township's long-term *Municipal Solid Waste Management Strategic Plan* (MSWMSP), a permanent, upgraded municipal Blue Box recycling transfer station was identified as the preferred solution for operations at the Round Lake site. On January 12, 2012, the Township held a pre-consultation conference call with representatives of the MOE to review the preferred solution for the MSWMSP and subsequent *Environmental Protection Act* (EPA) ECA applications and approvals (Appendix B). The

application to amend the ECA for the Round Lake site, and supplemental documentation including a *Design and Operations Plan – Municipal Solid Waste Transfer Station,* was submitted to the MOE on January 31, 2012 (DOP; Greenview, 2012a).

In 2012, the Township received MOE Technical Support Section (TSS) groundwater review comments of the *2011 Annual Report* (Greenview, 2012b), dated August 28, 2012, and a draft amended ECA, dated October 5, 2012 for the Round Lake site (Appendix B). Response comments with respect to the received groundwater review comments and the draft amended ECA were submitted to the MOE in correspondence, dated October 24, 2012 (Appendix B).

On November 30, 2012, the MOE issued an amended ECA which recognized the DOP (Greenview, 2012a) for the operation of a waste transfer station at the Round Lake site (Appendix A). The ECA (formerly referred to as a PC of A) replaced all previously issued PC of A's for the Round Lake site. Municipal waste currently collected at the Round Lake site waste transfer station is transferred to the Township's Killaloe site for management. Blue Box recyclables and household organics are collected and stored on-site, and transferred off-site for management as quantities warrant. Construction of a permanent Blue Box recycling transfer station was completed by the Township in summer 2012.

Greenview Environmental Management Limited (Greenview) was retained by the Township to complete the 2012 environmental monitoring and reporting program at the Round Lake waste disposal site.

1.3 PURPOSE AND SCOPE

The purpose of this report is to provide an overview of the annual environmental monitoring, environmental compliance, and operations at the Round Lake waste disposal site, in accordance with Condition 11 of the amended ECA A412303, including the following:

- Groundwater quality assessment and RUC (MOE Guideline B-7) compliance (Section 4.1).
- Site operational overview (Section 4.2).
- Conclusions and recommendations for future monitoring programs at the site (Section 5.0).

2.0 SITE DESCRIPTION

The following sections present a summary of the physical characteristics for the Round Lake waste disposal site. Locations of features described in this report are referenced to grid north.

2.1 TOPOGRAPHY AND DRAINAGE

The Round Lake waste disposal site is located approximately 450 metres (m) southwest of the Sherwood River, and 850 m west of Round Lake. Topography in the southern portion of the waste mound slopes to the south; however, local topography in the vicinity of the site slopes marginally to the northeast (Figure 2).

In the immediate vicinity of the waste mound, minimal surface water is observed under normal conditions due to the porous nature of the overburden (sands and gravels), and the relatively flat topography. In addition to the Sherwood River northeast of the site, a small creek tributary is located approximately 130 m south (upstream) of the site.

2.2 HYDROGEOLOGICAL CONDITIONS

Overburden geology at the Round Lake site is characterized by localized sand and gravel deposits typical of a glaciolacustrine delta. Bedrock immediately beneath the overburden consists of Precambrian igneous and metamorphic rock, specifically granite and gneiss (The Greer Galloway Group Inc. [GGG], 1998). Overburden geology to the west of the site (approximately two [2] km) is typified by sand and clay deposits, overlying the bedrock unit (County of Renfrew, 2007).

The predominant direction of groundwater flow at the Round Lake site is to the northeast, towards the Sherwood River and Round Lake (Figures 3 and 4).

2.3 OPERATIONAL SETTING

The Round Lake site is presently situated on Township-owned lands and currently consists of an approved waste disposal area of 1.62 hectares (ha) within a property area of 3.5 ha, a 1.33 ha parcel of land designated for CAZ purposes, and an easement to access monitoring well BH95-10 (Figure 3).

The waste disposal site at Round Lake has been interim-closed to waste disposal operations since June 2003, and has since been operating as a mobile waste transfer station. Historically, the Township has maintained a permanent attendant's office on-site, and during operational hours, a mobile compactor truck and recycling totes for acceptance of regular Blue Box recyclables. Municipal waste and Blue Box

recyclables received at the site were deposited in a mobile compactor truck and recycling totes for transfer and disposal at the Killaloe waste disposal site, as applicable to the material type.

In fall 2010, two (2) specialized MOLOK containers for the on-site collection and transfer of organic waste with a total storage capacity of 1.6 m^3 were installed at the Round Lake site, in accordance with Conditions 4.12 and 4.13 of the ECA (Appendix A).

In summer 2012, the Township completed construction of a permanent Blue Box recycling transfer station at the Round Lake site including a retaining wall and two (2) in-use Blue Box recycling roll-off containers for the storage and transfer of mixed fibres and commingled containers. Received municipal waste continues to be collected in a mobile waste compactor truck for transfer to the Killaloe Waste Disposal Site for management.

3.0 2012 ENVIRONMENTAL MONITORING PROGRAM

The following sections present a methodology of the environmental monitoring program conducted at the Round Lake waste disposal site in 2012.

3.1 GROUNDWATER MONITORING

Groundwater monitoring and sampling activities were conducted at the Round Lake site on April 26, 2012 and October 25, 2012 by Greenview using the network of groundwater monitoring wells as part of the site's 2012 environmental monitoring program (Table 1). The UTM coordinates of the groundwater monitoring wells were collected by Greenview personnel during site visits in 2012 using a handheld geographic positioning system (GPS) instrument with an anticipated accuracy of within +/- 5 m (Table 2). An electronic water level tape was used prior to sampling to determine the static groundwater level at each monitoring well involved in the monitoring program during both the spring and fall sampling events (Table 3). Based on the groundwater elevation, a well purge volume equivalent to approximately three (3) borehole volumes was calculated using a standard conversion factor relevant to the respective well diameter. The calculated well purge volume was then removed using the dedicated polyethylene tube stored within the well column.

Following the purge, groundwater samples were collected from each monitoring well using polyethylene tubing and inertial lift foot valves, and were analyzed onsite for pH, dissolved oxygen (DO), conductivity, and temperature. Samples were collected in appropriate sample bottles as supplied by an accredited laboratory, and the designated samples for metal parameters were filtered in the field using a dedicated High-Capacity 45 micron filter to reduce the potential for turbidity-induced bias in the analytical results.

As part of the fall sampling event at the Round Lake site for the 2012 monitoring program, and as specified in the ECA for the site (Appendix A), a sample set for volatile organic compounds (VOC) was collected from monitoring wells BH-1, BH-2D, BH-95-9, and BH01-14, with additional collected samples including a trip blank, a field blank, and a duplicate VOC sample for Quality Assurance and Quality Control (QA/QC) purposes (Table 4; Appendix C). VOC were not sampled at monitoring wells BH-2S and BH-5, as the wells were observed to have insufficient water to sample for the fall sampling event (Appendix C).

Duplicate groundwater samples were obtained for QA/QC purposes from the background and surveillance parameter suite (Table 1) during both the April 26, 2012 and October 25, 2012 sampling events from monitoring well BH-2D (Appendix C). A duplicate sample was collected from monitoring well BH-6 during the October 25, 2012 sampling event for QA/QC purposes involving the routine parameter suite (Table 1; Appendix C).

All samples were submitted to an accredited analytical laboratory to be analyzed for the parameter suite listed in Table 1.

Field sampling records completed during the 2012 monitoring program are included in Appendix C. The groundwater samples were recorded on a laboratory Chain of Custody Form, and the samples were placed in coolers packed with contained ice for preservation during transport to the analytical laboratory.

Available borehole logs are included in Appendix D. The available borehole logs include details regarding well construction for the corresponding monitoring wells.

The results of the 2012 groundwater monitoring program are presented in Section 4.1.

3.2 SURFACE WATER MONITORING

In accordance with Schedule "B" of ECA A412303, as amended April 8, 2003, surface water sampling was removed from the environmental monitoring program at the site as the sampling locations were typically dry, and flowing conditions were only observed following spring run-off or during exceptionally wet periods. Additionally, there was no evidence of landfill-related impacts noted during the surface water sampling events (Golder Associates [Golder], March 2004).

3.3 ANALYTICAL LABORATORY ACCREDITATION

Collected groundwater samples were submitted for analysis to the SGS Environmental Laboratory (SGS), located in Lakefield, Ontario. SGS is accredited by the Standards Council of Canada (SCC) and the Canadian Association for Laboratory Accreditation (CALA), for specific environmental testing procedures listed in the scope of accreditation. SGS is licensed by the MOE to perform analysis on drinking water in Ontario in accordance with the *Safe Drinking Water Act*.

3.4 LANDFILL GAS MONITORING

Landfill gas monitoring is not part of the environmental monitoring program for the site. The waste mound at the Round Lake site has porous cover materials allowing natural gas flux to the atmosphere. Overburden geology at and adjacent to the site is characterized by shallow sand and gravel materials, overlying a dense igneous/metamorphic bedrock unit (GGG, 1998). These overburden and bedrock characteristics, coupled with the extended distance to the nearest residence, provide a minimal risk of landfill gases impinging off-site receivers.

3.5 OPERATIONAL MONITORING

Operational monitoring at the Round Lake site is minimal given that the site currently only functions as a waste transfer station and the site status is presently interim-closed. A topographic survey was completed by Greenview on October 25, 2012 in order to update site features at the Round Lake site (Figure 2).

Waste record keeping was conducted on a weekly basis at the Round Lake site, documenting municipal solid waste and Blue Box recycling quantities received and transported to the Township's Killaloe waste disposal site.

The Township submits annual waste diversion reports in accordance with the Municipal Datacall, inclusive of the Round Lake site, to Waste Diversion Ontario (WDO).

4.0 ENVIRONMENTAL MONITORING RESULTS

The following sections present a summary of the environmental monitoring results obtained during the Round Lake waste disposal site 2012 environmental monitoring program.

4.1 GROUNDWATER QUALITY ASSESSMENT

The results of the 2012 groundwater monitoring program conducted at the site are presented as follows.

4.1.1 GROUNDWATER CONFIGURATION

The direction of groundwater flow within the shallow overburden unit at the Round Lake site is generally to the north and northeast in spring and fall 2012 (Figures 3 and 4), which is consistent with historical results (Greenview, 2012b). The groundwater elevation data obtained during the 2012 groundwater monitoring program at the site are provided in Table 3. In the spring of 2012, average horizontal gradients from the vicinity of the waste mound, and to the north and northeast of the waste mound, were calculated to be approximately 0.001 and 0.015, respectively (Figure 3). Similarly, in the fall of 2012, average horizontal gradients from the vicinity of the waste mound, and to the north and northeast of the waste mound, were calculated to be approximately 0.001 and 0.002, respectively (Figure 4). An upward vertical gradient of 0.032 was calculated at monitoring wells BH-2S and BH-2D for the April 2012 sampling event. At monitoring wells BH01-13S and BH01-13D an upward vertical gradient of 0.103 was calculated in April 2012. No vertical gradients could be calculated in October 2012 because the shallow monitoring wells BH-2S and BH01-13S were observed to be dry (Appendix C).

4.1.2 GROUNDWATER QUALITY

Results of the 2012 groundwater monitoring program completed at Round Lake are presented in Table 4 and the accredited laboratory Certificates of Analysis (SGS) are attached in Appendix C. Analytical data obtained from respective groundwater wells has been compared to the Ontario Drinking Water Standards (ODWS; MOE, 2006), background water quality at the site, and MOE Guideline B-7 and the RUC (MOE, 1994). Trend analysis has been completed by reviewing data for each monitoring well over the previous five (5) year period.

Background water quality at the Round Lake site has historically been interpreted from groundwater samples acquired at monitoring wells BH-1 and BH-5, located upgradient from the waste mound. Monitoring well BH-1 is located on the western property boundary of the Round Lake site, and well BH-5 is located near the southwestern corner of the site (Figure 3).

Groundwater at monitoring well BH-1 was sampled in April 2012 and October 2012, while BH-5 was only sampled in April 2012 as it was noted to have insufficient water to sample in October 2012 (Appendix C). Groundwater quality results in 2012 are generally similar to historically observed parameter concentrations at both wells (Table 4). Exceedances of ODWS in groundwater quality at BH-1 for the April and October 2012 sampling events include alkalinity (low), aluminum, dissolved organic carbon (DOC), iron and field-tested pH (low) and are consistent with historical results (Greenview, 2012b; Table 4). Additionally, for the October 2012 sampling event, manganese was found to exceed the ODWS at monitoring well BH-1 (Table 4). At monitoring well BH-5, ODWS exceedances in groundwater quality in April 2012 include aluminum, iron, and manganese (Table 4), and are consistent with concentrations historically noted at the background wells (Greenview, 2012b). Monitoring well BH-1 was observed to be stable and had no significant trends for concentrations of monitored parameters following inclusion of 2012 results (Table 4). Monitoring well BH-5 was observed to have decreasing trends for concentrations of barium, boron, calcium, hardness and strontium following inclusion of 2012 results (Table 4). Groundwater quality results at BH-1 and BH-5 continue to be representative of naturally-occurring conditions in background groundwater quality in the vicinity of the Round Lake waste disposal site with the inclusion of the 2012 groundwater quality results.

Leachate indicator parameters at the site, as identified in Schedule “C” of ECA A412303 (Appendix A), include alkalinity, barium, boron, calcium, chloride, chromium, conductivity, hardness, and total dissolved solids (TDS). In accordance with the MOE TSS groundwater review comments dated August 28, 2012 (Appendix B), a discussion on the relationship between the leachate indicator parameters and iron and manganese is reviewed in Section 4.1.4 of this report.

Groundwater immediately downgradient of the waste mound is monitored for the routine parameter suite at groundwater wells BH-6 and BH01-15, and for the background and surveillance suite at monitors BH-2S and BH-2D (Table 1; Figure 3).

Characterization of leachate quality at the site has historically included a review of groundwater quality at monitoring wells BH-2S and BH-2D, which are located downgradient of the northeastern extent of the limit of waste (Figure 3). Similar to the 2011 results (Greenview, 2012b), most parameter concentrations at BH-2S and BH-2D remain elevated above background levels in 2012 (Table 4). ODWS exceedances were observed in 2012 for concentrations of aluminum, hardness, iron, and manganese in April and October 2012, for pH (low) in April 2012, and for DOC in October 2012 in groundwater at monitoring well BH-2D (Table 4). For groundwater quality at monitoring well BH-2S, ODWS exceedances were observed for concentrations of hardness, iron, manganese, and pH (low) in April 2012 only (Table 4). Consistent with

historical results (Greenview, 2012b), monitoring well BH-2S was noted to be dry in October 2012 (Appendix C). Similar to historical results, several parameter concentrations were found to have decreasing trends at monitoring well BH-2D including alkalinity, chloride, manganese, potassium and sodium, while an increasing trend was noted for concentrations of aluminum, following inclusion of 2012 results (Table 4). Groundwater quality at monitoring well BH-2S was noted to have decreasing trends for concentrations of ammonia, copper, manganese and Total Kjeldahl Nitrogen (TKN) following inclusion of 2012 data (Table 4). Based on their proximity to the limit of waste, their location in-line with the direction of groundwater flow, and observed parameter concentrations in 2012, monitoring wells BH-2S and BH-2D are interpreted to exhibit impacts resultant of landfill-related factors; however, the impacts appear to be generally decreasing with time.

Monitoring well BH-6 is located near the mid-point of the northern boundary of the approved waste disposal area, approximately 15 m north of the existing limit of waste, and monitoring well BH01-15 is located east and adjacent to the eastern property boundary (Figure 3). Groundwater quality results obtained in 2012 from monitoring well BH-6 were generally similar to background conditions, with only a few parameters elevated above background concentrations (Table 4). For monitoring well BH-6, non-conformance with ODWS limits was noted for field-tested pH (low) in October 2012 only. The observed value for alkalinity at BH-6 was comparable to groundwater quality at background monitoring wells BH-1 and BH-5, and the low pH value is interpreted to be related to the low alkalinity concentrations historically observed at the site (Table 4). Groundwater quality at monitoring well BH-6 was observed to have decreasing trends with respect to concentrations of manganese and sulphate (Table 4). Based on the groundwater configuration at the site, monitoring well BH01-15 is interpreted to be located partially cross-gradient to the direction of groundwater flow (Figure 3). Consistent with 2011 results (Greenview, 2012b), no sample was obtained from monitoring well BH01-15 in October 2012 as it was observed to be dry (Appendix C). Monitoring well BH-6 does not appear to be significantly impacted by landfill-related factors at the Round Lake site.

Groundwater monitor BH01-12D is located approximately 10 m inside of the northwestern CAZ boundary, and approximately 60 m downgradient of the former waste mound (Figure 3). In 2012, some parameter concentrations were observed to be elevated above background conditions, while concentrations of alkalinity (low), aluminum, DOC, iron, manganese and field-tested pH (low) were found to exceed ODWS (Table 4). These ODWS exceedances are not considered to be entirely resultant of landfill-related factors as similar exceedances of ODWS are observed in the background water quality (BH-1 and BH-5) in 2012 (Table 4). Decreasing trends were noted for concentrations of sulphate and manganese at monitoring well BH01-12D following inclusion of 2012 results (Table 4). Groundwater quality at BH01-12D may be partially impacted by landfill-related factors from the site; however, groundwater monitor BH01-12D is located

partially cross-gradient to the direction of groundwater flow at the site and many parameter concentrations are comparable to background groundwater quality (Table 4; Figure 3).

Based on the interpreted direction of groundwater flow, monitoring well BH-8 is located downgradient of the former waste mound and approximately 60 m upgradient of monitoring well BH95-9 located at the downgradient CAZ boundary (Figure 3). Consistent with historical results (Greenview, 2012b), most parameter concentrations from the 2012 groundwater monitoring program remain elevated above background water quality (Table 4). ODWS exceedances were observed in 2012 at monitoring well BH-8 for concentrations of DOC, hardness, iron, manganese and field-tested pH (low) (Table 4). The ODWS exceedances observed at BH-8 are consistent with historical results (Greenview, 2012b; Table 4). Similar to results from 2011, a decreasing trend was observed for concentrations of chloride at monitoring well BH-8 following inclusion of 2012 results, while an increasing trend was observed for aluminum (Table 4). Since monitoring well BH-8 is located downgradient from the limit of waste and in the direction of groundwater flow, and given that many parameter concentrations remain elevated above background levels, BH-8 appears to be impacted by landfill-related factors; however, naturally-occurring conditions at the site are also interpreted to be contributing to groundwater quality at BH-8.

Groundwater quality near the downgradient CAZ boundary is monitored primarily using the background and surveillance parameter suite (Table 1) at monitors BH01-14, BH01-13S, BH01-13D, and BH95-9 (Figure 3). Monitoring well BH95-10 is located approximately 100 m north of the northeast corner of the CAZ, and 210 m northeast of the existing limit of waste (Figure 3), and is sampled as part of the routine groundwater sampling program (Table 1).

Monitoring well BH01-14 is located approximately 80 m north of the waste mound, and is used to assess water quality at the downgradient CAZ boundary (Figure 3). Similar to historical results (Greenview, 2012b), most parameter concentrations remain elevated above background water quality (Table 4). ODWS exceedances were observed at BH01-14 for concentrations of aluminum, iron and manganese in April 2012 and October 2012, and for field-tested pH (low) in October 2012 only (Table 4). The concentrations of aluminum are significantly less than those observed at background monitoring well BH-1. Therefore, aluminum is interpreted to be naturally-occurring in the vicinity of the Round Lake site. Observed concentrations of iron and manganese were significantly less than those observed at monitoring well BH-2D adjacent to the waste mound, indicating that attenuation is likely occurring downgradient of the site (Table 4). Additionally, the concentrations of manganese observed at monitoring well BH01-14 are generally consistent with historical concentrations observed in the background at monitor BH-5 following inclusion of 2012 results. In 2012, decreasing trends were observed for concentrations of alkalinity,

conductivity, hardness and iron at monitoring well BH01-14 (Table 4). Groundwater quality at monitoring well BH01-14 is interpreted to be partially impacted from landfill-related factors; however, naturally-occurring conditions at the site are also interpreted to be contributing factors to groundwater quality at BH01-14.

Groundwater quality at the downgradient CAZ boundary north of the site is monitored at groundwater monitoring wells BH01-13S and BH01-13D, which are located at the CAZ boundary approximately 85 m north of the northeastern extent of the existing limit of waste (Figure 3). Monitoring well BH01-13S was noted to be dry during the October 2012 sampling event and thus no sample was obtained (Appendix C). Many parameter concentrations in groundwater quality from monitoring well BH01-13S were observed to be elevated in comparison to background groundwater quality at the Round Lake site. In April 2012, ODWS exceedances were observed in groundwater quality at monitoring well BH01-13S for aluminum and iron (Table 4). The concentration of aluminum was noted to be consistent with historical concentrations of aluminum in background groundwater quality at monitoring wells BH-1 and BH-5 (Table 4). The concentration of iron at BH01-13S was observed to be lower than concentrations noted at background monitoring wells BH-1 and BH-5 in 2012. Most parameter concentrations at BH01-13D were noted to be elevated above background groundwater quality in 2012 (Table 4). Monitoring well BH01-13D was observed to have ODWS exceedances for iron, manganese and field-tested pH (low) in April and October 2012, and aluminum in October 2012 only (Table 4). Decreasing trends were observed for concentrations of alkalinity, hardness, iron and TDS at monitoring well BH01-13D, while aluminum was noted to have an increasing trend following inclusion of 2012 data (Table 4). Based on observed groundwater quality at monitoring well BH01-13D, as compared to groundwater quality observed at leachate monitoring well BH-2D, significant attenuation is interpreted to be occurring downgradient of the Round Lake site (Table 4). Groundwater quality at monitoring well BH01-13D is interpreted to be impacted by landfill-related factors; however, naturally-occurring conditions at the site are also contributing factors to groundwater quality.

Monitoring well BH95-9 is located at the northeastern extent of the CAZ, approximately 120 m northeast of the former waste mound (Figure 3). Most parameter concentrations were observed to be elevated above background conditions in 2012, consistent with historical data at BH95-9 (Greenview, 2012b; Table 4). Despite many of the parameters exceeding background concentrations at monitoring well BH95-9, the concentrations are generally significantly less than those found at monitoring wells immediately adjacent to the landfill (ie. BH-2D), indicating attenuation is occurring within the CAZ (Table 4). Consistent with historical results (Greenview, 2012b), only concentrations of iron and manganese exceeded ODWS in both the April and October 2012 sampling events at BH95-9, while field-tested pH (low) was observed to not conform with the ODWS in April 2012 (Table 4). Monitoring well BH95-9 was observed to have decreasing trends for concentrations of conductivity, iron and zinc following the inclusion of 2012 data (Table 4).

Groundwater quality at monitoring well BH95-9 is interpreted to be impacted from landfill-related factors; however, naturally-occurring conditions at the site are also contributing factors.

Groundwater monitoring well BH95-10 is located approximately 100 m north of the northeastern corner of the CAZ boundary (Figure 3). Access to this groundwater monitoring well and permission for groundwater sampling are provided under easement by the current property owner, as approved in the ECA (Appendix A). Monitoring well BH95-10 forms part of the routine (fall only) groundwater sampling program at the site (Table 1). While some concentrations observed at BH95-10 were higher than background, consistent with historical results, no ODWS exceedances were noted for any parameter concentrations for the October 2012 sampling event at BH95-10. Groundwater quality at monitoring well BH95-10 is interpreted to be stable, with decreasing trends in concentrations of iron and manganese following inclusion of 2012 results (Table 4). Nitrate concentrations elevated above background groundwater quality have historically been observed at BH95-10 (Greenview, 2012b; Table 4), and are likely related to the proximity of monitoring well BH95-10 to adjacent agricultural land use.

As part of the 2012 groundwater monitoring program at the site, monitoring wells BH-1, BH-2D, BH95-9, and BH01-14 were analyzed for VOC during the fall sampling event. All reported VOC were below their respective detection limits, with the exception of the concentration of cis-1,2-dichloroethene at BH-2D in October 2012 (Table 4). Monitoring wells BH-2S and BH-5 were observed to have insufficient water to sample in October 2012 and VOC samples were not collected (Appendix C). No exceedances of ODWS were noted for concentrations of VOC in 2012 (Table 4). In accordance with MOE TSS groundwater review comments, dated August 28, 2012, the next sampling event for VOC will be scheduled for fall 2017.

In April and October 2012, groundwater samples were collected from residential groundwater sampling location R-1, located approximately 300 m east and upgradient of the site, on the south side of Sunrise Road. The 2012 groundwater quality results were similar to historical data (Greenview, 2012b), with only alkalinity (low) not conforming to ODWS in April 2012 (Table 4). At residential well R-1, a slightly increasing trend in zinc was noted following inclusion of 2012 results (Table 4). The groundwater quality at R-1 is not interpreted to be impacted by the Round Lake site.

Blind duplicate samples for QA/QC purposes were collected for the background and surveillance parameter suite (Table 1) from monitoring well BH-2D in April and October 2012 (Appendix C). A blind duplicate sample was obtained for the routine parameter suite (Table 1) at monitoring well BH-6 during the October 2012 sampling event (Appendix C). The QA/QC sample results were similar to each of the identified samples, and thus, the results of the 2012 groundwater monitoring program can be interpreted with confidence (Appendix E).

4.1.3 REASONABLE USE CONCEPT ASSESSMENT

In an effort to assess potential landfill-related impacts migrating beyond the CAZ boundary, the groundwater RUC was used as an assessment tool to monitor downgradient impacts from the waste disposal site. Downgradient impacts are typically observed at monitoring wells located at, or in close proximity to, the downgradient property boundary, and as such are compared to trigger concentrations for specific parameters as determined by leachate quality at the site using the RUC for groundwater (MOE *Procedure B-7-1*, 1994).

The MOE *Procedure B-7-1: Determination of Contaminant Limits and Attenuation Zones* iterates that in accordance with the appropriate criteria for particular uses, a change in groundwater quality on an adjacent property as a result of landfilling activities will only be accepted by the MOE as follows:

> *The quality cannot be degraded by an amount in excess of 50% of the difference between background and the Ontario Drinking Water Standards for non-health related parameters and in excess of 25% of the difference between background and the Ontario Drinking Water Standards for health related parameters. Background is considered to be the quality of the groundwater prior to any man-made contamination.*
>
> *MOE Procedure B-7-1*

The RUC assessment was conducted using the concepts and procedures outlined in MOE *Procedure B-7-1* (MOE, 1994), specifically using the median value of individual background parameter concentrations from monitoring wells BH-1 and BH-5, to characterize natural groundwater quality at the site. Groundwater monitoring wells BH-8, BH95-9, BH01-13D, and BH01-14 were used for monitoring downgradient impacts at the CAZ boundary for assessing site conformance in accordance with Schedule "C" of the ECA (Appendix A).

The compliance evaluation parameters for RUC application as detailed in Schedule "C" of the ECA are barium, boron, chloride, chromium, and VOC. The RUC trigger concentrations are defined as 75% of the calculated RUC criteria for each of the respective compliance evaluation parameters. The compliance evaluation parameters and respective 75% values of the calculated RUC criteria were applied to the monitoring wells noted above (Table 5).

There were no exceedances for the trigger concentrations of barium, boron, chloride, and chromium at the groundwater wells identified for evaluation (BH-8, BH95-9, BH01-13D, and BH01-14; Table 5). All VOC concentrations in 2012 at BH95-9 and BH01-14 were below their respective method detection limits, and as

such the trigger concentrations for VOC were not calculated (Table 4). There were no reported trigger exceedances in 2012, and the Trigger Mechanism was not activated.

Trend analysis for the compliance evaluation parameters barium, boron, chloride, and chromium over the previous five (5) year period in groundwater quality at monitoring wells BH-8, BH95-9, BH01-13D, and BH01-14 indicate that all noted parameter concentrations are either stable or decreasing following inclusion of 2012 results (Table 5).

The Round Lake site is interpreted to be in conformance with Guideline B-7 following the completion of the 2012 groundwater monitoring program at the site. As active landfilling operations have not occurred at the site since June 20, 2003, parameter concentrations are expected to remain stable or decrease over time.

4.1.4 REVIEW OF RELATIONSHIP OF IRON, MANGANESE, AND LEACHATE INDICATOR PARAMETERS

In accordance with the MOE TSS groundwater review comments dated August 28, 2012 (Appendix B), an evaluation of the relationship between the leachate indicator parameters (per Schedule C of the amended ECA) and iron and manganese was requested.

The following is a review of the relationship of the leachate indicator parameters (alkalinity, barium, boron, calcium, chloride, chromium, conductivity, hardness, and TDS), and iron and manganese at the site using five (5) year time trend analysis at background monitoring wells BH-1 and BH-5, leachate monitoring wells BH-2S and BH-2D, and downgradient monitoring wells BH01-12D, BH01-13S, BH01-13D, BH01-14, and BH95-9 (Table 4; Figure 3 and 4). For parameters where increasing or decreasing trends are not indicated, parameter concentrations are noted to be either stable or variable over the previous five (5) year sampling period.

No significant trends were noted at background monitoring wells BH-1 for leachate indicator parameters or iron and manganese following inclusion of 2012 results, while decreasing trends were observed for barium, boron, calcium, and hardness at background monitor BH-5 (Table 4).

Leachate monitoring well BH-2S was observed to have a decreasing trend for manganese, while decreasing trends were noted for alkalinity, chloride, and manganese at leachate monitor BH-2D (Table 4).

Downgradient monitor BH01-12D was noted to have a decreasing trend for manganese, and BH01-13 was observed to have decreasing trends for alkalinity, hardness, TDS, and iron. Similarly, monitor BH01-14 was observed to have decreasing trends for alkalinity, conductivity, hardness, and iron following inclusion of

2012 results. Downgradient monitoring well BH95-9 was noted to have decreasing trends for conductivity and iron. Only downgradient monitoring well BH01-13S was observed to have a slight increasing trend for iron following inclusion of 2012 results; however, the concentration of iron on April 26, 2012 was only slightly in excess of the ODWS, and was observed to be consistent with historically reported iron concentrations at background monitoring wells BH-1 and BH-5 (Table 4).

Based on the above review of five (5) year time trend analysis of leachate indicator parameters and iron and manganese at the Round Lake site, it is interpreted that concentrations are generally decreasing across the site over time, consistent with the natural attenuation process. Since the Round Lake site has not received waste for landfilling since 2003, decreasing trends for the leachate indicator parameters noted in Schedule C of the amended ECA, and iron and manganese are anticipated to continue in future environmental monitoring programs.

4.2 OPERATIONS SUMMARY

A summary of 2012 waste management operations at the Round Lake waste disposal site is presented below.

4.2.1 SITE OPERATIONS

The site is currently operating as a mobile municipal waste and Blue Box recycling transfer station, and is currently closed to active landfilling operations. In fall 2010, two (2) specialized MOLOK containers were installed at the Round Lake site, in accordance with Conditions 32 and 33 of the PC of A dated September 4, 2009 (Appendix A). The Round Lake site currently operates under the amended ECA, issued on November 30, 2012 (Appendix A).

In summer 2012, the Township completed construction of a permanent Blue Box recycling transfer station at the Round Lake site including a retaining wall and two (2) in-use Blue Box recycling roll-off containers for the storage and transfer of mixed fibres and commingled containers. Received municipal waste continues to be collected in a mobile waste compactor truck for transfer to the Killaloe Waste Disposal Site for management.

A sign is posted at the entrance to the waste disposal site that provides hours of operation, permitted users, the ECA number for the site, the waste management by-law number for the Township, accepted waste and recycling materials, and emergency contact information. The entrance of the site is equipped with a lockable gate controlling access to the site, the waste mound was well vegetated and no exposed waste was observed during site visits in 2012. The Round Lake site is currently interim-closed.

The site access road extending from Sunrise Road has sufficient width at the entrance and within the site to allow for unimpeded winter travel and access for emergency and snow removal equipment (Figure 2). The site access road was observed to be in good condition during the routine site inspections conducted by Greenview in 2012.

Prior to the issuance of the amended ECA on November 30, 2012 (Appendix A), the hours of operation at the Round Lake site in 2012 were as follows:

Operational Hours	
Thursday	8:30 a.m. – 12:00 p.m.
Sunday	8:30 a.m. – 12:00 p.m.

Following the issuance of the amended ECA on November 30, 2012 (Appendix A), the hours of operation at the Round Lake site were as follows:

Operational Hours	
Thursday	8:30 a.m. – 3:30 p.m.
Sunday	8:30 a.m. – 3:30 p.m.
Mondays of Long Weekends (May – October)	2:00 p.m. – 6:00 p.m.

4.2.2 WASTE DISPOSAL / TRANSFER SUMMARY

The Round Lake waste disposal site is currently closed to active landfilling operations; however, the site is presently operating as a mobile waste and Blue Box recycling transfer station, with all municipal waste transferred to the Township's Killaloe site for management. Blue Box recycling and household organics are transferred off-site for management as required.

Based on Township records, approximately 2,566 vehicles visited the Round Lake site in 2012, with approximately 3,336 bags of waste received for transfer to the Township's Killaloe site for disposal. Additionally, based on Township records 3,317 bags of commingled containers (tin/aluminum/plastic/glass), and 591 bags of mixed fibres were received at the Round Lake site in 2012 and transferred to the Township's Killaloe site for pickup by Beaumen Waste Management Systems Ltd. (Beaumen).

Recycling tonnage records provided by Beaumen for the Township indicate that approximately 190 tonnes of Blue Box recyclables were collected from the Township's Killaloe, Round Lake and Red Rock waste disposal sites in 2012. Blue Box recyclables contributing to this total included approximately 61.33 tonnes of commingled containers (tin/aluminum/plastic/glass), 74.02 tonnes of mixed fibres, and 54.65 tonnes of OCC. Blue Box recyclables from curbside collection within the Village of Killaloe by the Township, and Blue Box

recyclables transferred from the Township's Round Lake and Red Rock waste disposal sites are included in the Blue Box recycling tonnages provided by Beaumen. Approximately 11.91 tonnes of household organics were also collected within the Township from the depots at the Killaloe and Round Lake waste disposal sites in 2012 and processed by Ottawa Valley Waste Recovery Centre in Pembroke, Ontario.

4.2.3 SITE INSPECTIONS AND MAINTENANCE

Site inspections of the Round Lake site were conducted by Greenview as part of the April 26, 2012 and October 25, 2012 spring and fall sampling events. The Township also conducted periodic inspections to verify the compliance status of the site.

The site inspections included a cursory investigation of housekeeping/litter control aspects, monitoring well maintenance requirements in accordance with O. Reg. 903 (Wells), as amended, and a general site overview for MOE regulatory compliance issues. During the site inspections conducted by Greenview on April 26, 2012 and October 25, 2012, as part of the 2012 environmental monitoring program, all monitoring wells were observed to be in good condition in accordance with O. Reg. 903, as amended.

The entrance gate at the site was repaired and painted at the site in 2012, and the entrance portion of the site access road was improved. In addition, new privies were purchased for all of the Township's waste disposal sites.

The site inspection program undertaken by the Township at the site was completed in accordance with the amended ECA (November 30, 2012; Appendix A).

4.2.4 COMPLAINTS

There were no reported complaints received by the Township in 2012 with respect to waste management operations at the Round Lake site.

4.2.5 MONITORING AND SCREENING CHECKLIST

In accordance with the MOE TGD (MOE, 2010), the Monitoring and Screening Checklist for the Round Lake waste disposal site is included as Appendix F of this report.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the 2012 environmental monitoring program completed for the Round Lake waste disposal site, the following conclusions are provided:

- Groundwater flow within the shallow overburden at the Round Lake site is to the north and northeast, in the direction of the Sherwood River northeast of the site, consistent with historical results

- Groundwater quality from the monitoring wells immediately downgradient of the waste mound, and monitors to the northeast, are interpreted to be impacted from landfill-related factors, with monitoring wells BH-2S and BH-2D exhibiting generally higher parameter concentrations than in groundwater quality observed from the other wells in close proximity to the waste mound. The position and orientation of the leachate plume is interpreted to be consistent with historical results, and most parameter concentrations downgradient of the site are interpreted to be either stable or to have decreasing trends.

- There were no VOC exceedances of ODWS in groundwater quality from all monitoring wells analyzed for VOC during the 2012 groundwater monitoring program.

- As part of the April and October 2012 sampling events, drinking water samples were collected from residential groundwater sampling location, R-1, located upgradient and to the east of the site on Sunrise Road. Only alkalinity (low) was observed to not conform to ODWS limits in April 2012.

- There were no RUC exceedances of the compliance evaluation parameters in 2012 using the 75% RUC criteria values for barium, boron, chloride, chromium and VOC, as specified in Schedule "C" of ECA A412303, at downgradient monitors BH-8, BH95-9, BH01-13D, and BH01-14. Based on the results, the Trigger Mechanism described in Schedule "C" of the ECA was not activated, and the Round Lake site is interpreted to be in conformance with Guideline B-7 in 2012.

- Based on the above review of five (5) year time trend analysis of leachate indicator parameters and iron and manganese at the Round Lake site, it is interpreted that concentrations are generally decreasing across the site over time, consistent with the natural attenuation process. Since the Round Lake site has not received waste for landfilling since 2003, decreasing trends for the leachate indicator parameters noted in Schedule C of the amended ECA, and iron and manganese are anticipated to continue in future environmental monitoring programs.

- Based on Township records, approximately 2,566 vehicles visited the Round Lake site in 2012, with approximately 3,336 bags of waste received for transfer to the Township's Killaloe site for disposal. Additionally, based on Township records 3,317 bags of commingled containers (tin/aluminum/plastic/glass), and 591 bags of mixed fibres were received at the Round Lake site in 2012 and transferred to the Township's Killaloe site for pickup by Beaumen.

- Recycling tonnage records provided by Beaumen for the Township indicate that approximately 190 tonnes of Blue Box recyclables were collected from the Township's Killaloe, Round Lake and Red Rock waste disposal sites in 2012. Blue Box recyclables contributing to this total included approximately 61.33 tonnes of commingled containers (tin/aluminum/plastic/glass), 74.02 tonnes of mixed fibres, and 54.65 tonnes of OCC. Blue Box recyclables from curbside collection within the Village of Killaloe by the Township, and Blue Box recyclables transferred from the Township's Round Lake and Red Rock waste disposal sites are included in the Blue Box recycling tonnages provided by Beaumen. Approximately 11.91 tonnes of household organics were also collected within the Township from the depots at the Killaloe and Round Lake waste disposal sites in 2012 and processed by Ottawa Valley Waste Recovery Centre in Pembroke, Ontario.

- Based on the results of the 2012 environmental monitoring program, the Round Lake site is in compliance with the terms and conditions of the ECA.

- Based on the Township's long-term MSWMSP, a permanent, upgraded municipal Blue Box recycling transfer station was identified as the preferred solution for operations at the Round Lake site. On January 12, 2012, the Township held a pre-consultation conference call with representatives of the MOE to review the preferred solution for the MSWMSP and subsequent EPA ECA applications and approvals. The application to amend the ECA for the Round Lake site, and supplemental documentation including a DOP, was submitted to the MOE on January 31, 2012. On November 30, 2012, the MOE issued an amended ECA which recognized the DOP for the operation of a permanent transfer station at the site.

The following recommendations are provided to the Township for consideration as part of the 2013 environmental work program for the Round Lake waste disposal site:

- The 2013 groundwater monitoring program for the site should continue as in 2012 with two (2) annual sample events, in the spring and fall, for the parameter suite provided in Table 1. Groundwater elevations at all monitoring wells should continue to be recorded during each sampling event, at least twice annually.

- VOCs at select groundwater monitoring wells on-site, per the amended ECA, should be completed every five (5) years (next in 2017).

6.0 CLOSING

Greenview has prepared this *2012 Annual Report* in accordance with Condition 11 of the ECA A412303 and MOE guidelines to document the results of the 2012 environmental monitoring program for the Round Lake waste disposal site, for review by the MOE.

Based on the results of the 2012 environmental monitoring program, the Round Lake waste disposal site is in compliance with all Conditions of the ECA (A412303) and with the inspections, monitoring, and reporting requirements of the Conditions therein.

This report is governed by the attached statement of service conditions and limitations (Appendix G).

All respectfully submitted by,

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED

Dan Hagan, B.Sc.
Project Manager / Geologist

Tyler H. Peters, P.Eng.
Project Director

7.0 REFERENCES

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TABLES

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Table 1
2012 Groundwater Monitoring Program
Round Lake Waste Disposal Site

Location	Frequency	Parameters
Groundwater ***Background and Surveillance*** BH-1, BH-2S, BH-2D, BH-5, BH-8, BH95-9, BH01-12D, BH01-13S, BH01-13D, BH01-14 R1 (Residential) 1 QA/QC	Twice (Spring and Fall) Field Measurements (pH, Conductivity, Temperature)	Alkalinity, aluminum, ammonia, barium, boron, calcium, chloride, chromium, cobalt, COD, copper, DOC, hardness, iron, magnesium, manganese, nitrate, nitrite, potassium, silicon, sodium, strontium, sulphate, TDS, TKN, total phosphorus, zinc
Routine BH-6, BH95-10, BH01-15 1 QA/QC	Once (Fall) Field Measurements (pH, Conductivity, Temperature)	Alkalinity, barium, boron, chloride, chromium, DOC, hardness, iron, manganese, nitrate, nitrite, sodium, sulphate, TDS
BH-1, BH-2S, BH-2D, BH-5, BH95-9, BH01-14 Trip Blank Field Blank 1 QA/QC	Once (Fall)	EPA 624 VOC's

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Table 2
Groundwater Monitoring Well and Surface Water Sampling Locations
Round Lake Waste Transfer Site

Groundwater			
Monitor	**Zone**	**Northing**	**Easting**
BH-1	18T		
BH-2D	18T	5055933	299362
BH-2S	18T	5055933	299362
BH-5	18T	5055780	299306
BH-6	18T	5055928	299314
BH-8	18T	5055977	299401
BH01-12D	18T	5055973	299308
BH01-13D	18T	5056013	299391
BH01-13S	18T	5056013	299391
BH01-14	18T	5056005	299364
BH01-15	18T	5055873	299415
BH95-9	18T	5056041	299403
BH95-10	18T	5056107	299430
R1	18T	5056071	299708

Notes:

Global Positioning System (GPS) point locations acquired by Greenview using a Garmin eTrex Venture HC.

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Table 3
Groundwater Elevations
Round Lake Waste Disposal Site

Monitor	Original Ground Elevations* (m)	Top Of Pipe Elevations* (m)	Revised Top of Pipe Elevations** (m)	Depth of Well (m)	Groundwater Elevations (m)														
					11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	06-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
BH-1	98.05	98.52	98.70	2.89	97.33	96.30	97.49	97.11	97.51	96.83	97.58	96.87	97.49	96.66	97.18	-	97.49	96.57	97.32	96.32
BH-2S	99.25	99.44	100.08	3.82	96.66	95.62	97.15	96.77	97.23	96.55	97.34	96.57	97.22	96.52	96.86	96.41	97.22	96.33	97.03	-
BH-2D	99.25	99.85	99.85	6.04	97.35	96.30	97.20	96.82	97.28	96.61	97.40	96.62	97.29	96.44	96.92	96.47	97.28	96.39	97.10	96.15
BH-3	100.24	100.69	100.69	6.26	97.30	96.25	97.17	96.78	97.24	96.55	97.35	96.56	97.26	98.69	96.90	96.41	97.25	96.34	97.83	96.10
BH-4	98.39	98.52	98.52	2.44	97.47	-	97.31	96.91	97.42	96.69	97.53	96.70	97.42	94.22	97.01	96.52	97.40	96.47	97.20	96.24
BH-5	97.95	98.42	98.42	2.45	97.41	96.31	97.26	96.89	97.37	96.61	97.48	96.64	97.36	96.42	96.98	96.45	97.37	96.38	97.17	96.15
BH-6	99.09	99.79	99.79	5.09	97.31	95.66	97.18	96.80	97.27	96.57	97.39	96.58	97.27	97.81	96.90	96.43	97.27	96.35	97.07	96.09
BH-7	100.48	100.89	100.89	5.96	97.32	96.27	97.18	96.81	97.26	96.58	97.37	96.59	97.27	96.43	96.91	96.44	97.25	96.36	97.08	96.12
BH-8	97.84	98.43	98.43	5.72	96.47	95.49	96.31	95.85	96.35	95.70	96.53	95.71	96.43	95.60	95.97	95.58	96.40	95.57	96.12	95.37
BH95-9	97.31	97.75	97.75	5.00	95.63	94.79	95.49	95.11	95.57	94.99	95.75	95.02	95.65	94.92	95.21	94.85	95.62	94.88	95.32	94.65
BH95-10	96.42	96.88	96.88	5.78	93.44	92.12	93.19	92.59	93.07	92.51	93.81	92.54	93.46	92.35	92.64	92.27	93.38	92.31	92.79	91.90
BH95-11	99.70	100.10	100.10	4.89	97.83	96.80	97.75	97.71	97.88	97.44	97.84	97.60	97.88	96.50	97.74	97.38	97.86	96.90	97.78	96.58
BH01-12D	98.76	99.45	99.19	5.66	97.28	96.18	96.88	96.52	97.00	96.29	97.10	96.30	96.98	96.12	96.62	96.15	96.99	96.09	96.79	94.81
BH01-13S	97.15	97.85	97.85	2.73	95.68	-	95.54	-	95.62	-	95.81	-	95.71	-	95.26	-	95.68	-	95.38	-
BH01-13D	97.15	97.92	97.92	4.40	95.85	94.98	95.73	95.30	95.73	95.17	95.99	95.20	95.89	95.08	95.45	95.03	95.86	95.07	95.56	94.88
BH01-14	97.17	97.61	97.61	7.47	95.83	94.91	95.70	95.27	95.78	95.13	95.96	95.16	95.86	95.03	95.41	94.99	95.82	95.01	95.54	94.79
BH01-15	101.79	102.55	102.55	6.11	97.34	-	97.21	96.81	97.28	96.60	97.39	96.60	97.29	-	96.92	-	97.27	-	-	-

Note:
* Values as surveyed in 2003, by Jp2g Consultants Inc.
** Corrected values based on above-ground PVC casing measurements in 2006.
All elevations are meters above sea level (masl), relative to a site specific benchmark elevation of 100.00 m.
"-" denotes no water level information available.

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Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-1																
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	6-May-09	6-Oct-09	10-May-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	**11**	**21**	**5**	**8**	**9**	**23**	**12**	**11**	**13**	**12**	**8**	**9**	**6**	**8**	**11**	**6**	**6**
Aluminum	0.2	0.1	**0.177**	**0.30**	**0.232**	**0.314**	**0.290**	**0.190**	**0.251**	**0.207**	**0.399**	**0.354**	**0.407**	**0.593**	**0.412**	**0.438**	**0.525**	**0.385**	**0.533**
Ammonia, Total (as N)	N/L	N/L	< 0.1	< 0.1	0.2	< 0.1	< 0.04	0.2	0.2	0.1	0.7	< 0.1	0.2	< 0.1	< 0.1	0.2	< 0.1	< 0.1	< 0.1
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.0003	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.016	0.015	0.012	0.015	0.016	0.014	0.012	0.012	0.012	0.011	0.00946	0.01270	0.0117	0.00993	0.0118	0.0135	0.0124
Boron	1.3	5.0	< 0.05	< 0.01	< 0.01	< 0.01	< 0.002	0.015	0.003	0.002	0.003	0.002	0.0016	0.0050	0.0100	0.0027	0.0039	0.0040	0.0069
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.0004	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	5.65	5.08	4.35	5.83	5.25	3.99	5.38	3.23	5.25	3.68	4.24	4.91	4.61	4.25	4.62	4.88	5.21
Chloride	126.0	250	1.5	1.9	1.6	1.8	1.7	1.5	1.9	2.1	2.1	1.6	1.9	2.2	1.5	1.7	1.7	2.0	1.5
Chromium	0.013	0.05	< 0.001	< 0.02	0.001	< 0.001	< 0.003	< 0.001	0.001	0.001	0.002	0.001	0.0012	0.0022	0.0014	0.0014	0.0035	0.0017	0.0015
Chemical Oxygen Demand	N/L	N/L	24	26	23	21	26	15	39	27	35	33	31	< 8	31	38	32	28	45
Cobalt	N/L	N/L	0.0048	< 0.01	0.0036	0.0029	< 0.003	< 0.003	0.004	0.004	0.003	0.007	0.0127	0.0108	0.00738	0.00735	0.0102	0.0025	0.0074
Conductivity (µS/cm) [3]	N/L	N/L	48	43	48	84	49	31	28	41	37	35	30	38	22	32	74	30	48
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.008	0.003	0.006	0.010	0.008	0.005	0.0069	0.0088	0.0067	0.0073	0.0107	0.0055	0.0067
Dissolved Organic Carbon	8.2	5	**8.3**	**10.9**	**7.5**	**10.3**	**8.6**	**7.1**	**8.2**	**9.7**	**13.2**	**11.3**	**12.9**	**15.3**	**12.5**	**12.6**	**19.5**	**12.4**	**13.1**
Hardness (as $CaCO_3$)	61	100	23.7	22	18.1	22.9	20.5	15.7	21.1	13.7	21.3	14.8	16.8	19.9	18.6	16.9	18.4	19.8	21.7
Iron	0.5	0.3	**0.83**	**0.52**	**0.46**	**0.72**	**0.53**	**0.44**	**0.36**	**0.44**	**0.52**	**0.57**	**0.49**	**0.84**	**0.40**	**0.48**	**1.27**	**0.56**	**0.58**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.0003	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	2.33	2.26	1.77	2.02	1.80	1.38	1.85	1.36	1.99	1.38	1.52	1.85	1.73	1.52	1.66	1.86	2.11
Manganese	0.06	0.05	**0.057**	**0.052**	0.034	**0.05**	0.031	0.026	0.024	0.024	0.024	0.031	0.0342	0.0461	0.0280	0.0233	0.0482	0.0300	**0.0522**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	< 0.05	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	**6.1**	**6.15**	**6.4**	**5.88**	**6.21**	**6.38**	**6.43**	6.66	6.53	6.71	**6.16**	**5.40**	**6.20**	6.85	7.55	**5.95**	**6.15**
Phosphorus, Total	N/L	N/L	0.48	0.08	< 0.02	< 0.02	0.02	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.011	< 0.009	0.06	< 0.009
Potassium	N/L	N/L	0.62	0.64	0.52	1.13	0.94	0.84	0.77	0.86	1.00	0.52	0.45	0.70	0.53	0.466	0.678	0.503	0.608
Silicon	N/L	N/L	7.16	7.03	7.88	8.78	7.21	7.70	7.00	8.82	8.31	8.50	7.86	9.16	7.79	8.51	10.0	8.3	9.9
Sodium	101.5	200	2.51	2.56	3.79	4.47	5.67	4.02	4.08	3.90	3.84	2.08	2.07	2.26	1.94	2.46	2.17	2.26	2.10
Strontium	N/L	N/L	0.032	0.032	0.024	0.034	0.03	0.02	0.03	0.02	0.03	0.02	0.0223	0.0279	0.0225	0.0220	0.0250	0.0259	0.0300
Sulphate	255	500	15.0	8.8	16.0	14.0	16.0	10.0	7.9	7.8	11.0	9.2	8.6	7.6	11	8.6	7.2	15.0	12.0
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.27	0.25	< 0.5	< 0.5	1.7	< 0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5	0.6
Total Dissolved Solids	288	500	69	97	91	91	111	83	63	100	103	69	97	91	69	74	80	86	97
Zinc	2.5	5	0.01	< 0.01	0.005	0.01	< 0.01	0.01	0.01	0.03	0.02	0.004	0.005	0.005	0.004	0.003	0.009	0.004	0.008

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-2S											
			12-May-04	11-May-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	6-May-09	10-May-10	24-May-11	26-Apr-12
Alkalinity (as $CaCO_3$)	257	30 - 500	163	173	181	169	124	150	169	121	157	146	138	140
Aluminum	0.2	0.1	0.016	0.010	< 0.01	< 0.01	0.012	0.008	0.009	0.018	0.0144	0.0130	0.0157	0.0118
Ammonia, Total (as N)	N/L	N/L	4.6	4.3	3.5	4.6	2.5	3.3	3.0	3.2	2.5	2.1	1.9	0.7
Arsenic	0.006	0.025	---	---	---	---	---	0.0007	---	---	---	---	---	---
Barium	0.26	1.0	0.151	0.152	0.156	0.117	0.118	0.103	0.123	0.096	0.127	0.115	0.100	0.108
Boron	1.3	5.0	0.110	0.110	0.145	0.130	0.094	0.096	0.112	0.084	0.105	0.105	0.105	0.105
Cadmium	0.001	0.005	---	---	---	---	---	0.0001	---	---	---	---	---	---
Calcium	N/L	N/L	39.4	45.4	49.4	42.3	33.2	31.6	36.3	30.6	37.3	39.0	38.9	39.3
Chloride	126.0	250	15	13	8.9	6.8	4.0	5.4	4.7	3.8	3.8	3.9	2.9	3.2
Chromium	0.013	0.05	0.003	0.004	< 0.003	< 0.001	0.0006	0.003	0.001	0.001	0.0009	0.0014	0.0010	0.0009
Chemical Oxygen Demand	N/L	N/L	14	18	17	32	12	32	18	31	13	18	17	14
Cobalt	N/L	N/L	0.0029	0.0018	< 0.003	< 0.003	0.003	0.003	0.008	0.019	0.0275	0.0109	0.00957	0.00242
Conductivity (µS/cm) [3]	N/L	N/L	300	306	340	284	231	228	231	235	250	107	228	215
Copper	0.5	1	< 0.005	< 0.005	0.007	0.004	0.005	0.007	0.005	0.003	0.0043	0.0043	0.0037	0.0023
Dissolved Organic Carbon	8.2	5	**5.7**	4.8	**6.3**	**5.9**	**5.0**	**5.0**	4.1	3.8	4.6	4.5	3.9	4.0
Hardness (as $CaCO_3$)	61	100	**137**	**160**	**170**	**146**	**112**	**112**	**123**	**106**	**124**	**131**	**129**	**132**
Iron	0.5	0.3	**1.81**	0.19	**0.61**	**1.06**	**0.72**	**0.71**	**1.03**	**1.98**	**3.13**	**1.75**	**2.33**	**0.48**
Lead	0.003	0.01	---	---	---	---	---	0.0002	---	---	---	---	---	---
Magnesium	N/L	N/L	9.39	11.4	11.3	9.76	7.00	7.96	7.92	7.28	7.61	8.15	7.71	8.23
Manganese	0.06	0.05	**5.41**	**1.26**	**1.06**	**2.32**	**2.71**	**2.48**	**2.71**	**2.37**	**3.65**	**1.81**	**1.49**	**0.52**
Mercury	0.0003	0.001	---	---	---	---	---	< 0.0001	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	0.29	0.38	0.58	0.35	0.17	1.73	0.28	0.72	0.49	0.39	0.75	1.36
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.8	6.7	**6.29**	**6.29**	**6.48**	6.62	6.50	**6.45**	6.56	6.50	**6.48**	**6.22**
Phosphorus, Total	N/L	N/L	0.06	0.02	< 0.01	0.03	0.03	< 0.01	0.02	< 0.01	< 0.01	0.02	< 0.009	< 0.03
Potassium	N/L	N/L	16.9	17.6	19.8	18.1	13.9	14.0	12.6	14.1	14.9	15.7	13.7	13.3
Silicon	N/L	N/L	11.20	9.49	10.00	12.80	10.60	13.60	8.51	12.40	10.7	12.1	10.7	9.9
Sodium	101.5	200	8.46	12.9	12.80	12.70	10.1	10.9	8.51	9.04	7.55	8.35	6.64	6.60
Strontium	N/L	N/L	0.27	0.27	0.30	0.27	0.21	0.22	0.22	0.20	0.225	0.218	0.211	0.201
Sulphate	255	500	20	18	19	18	16	15	18	12	14	14	13	19
Total Kjeldahl Nitrogen	N/L	N/L	4.70	4.40	3.75	4.33	3.40	3.50	3.30	3.40	3.0	2.2	2.7	0.7
Total Dissolved Solids	288	500	214	269	***289***	271	177	266	240	169	197	203	206	200
Zinc	2.5	5	0.01	0.003	< 0.01	0.01	0.01	0.02	0.01	0.004	0.004	0.003	0.004	0.004

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-2D																
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	06-May-09	06-Oct-09	10-May-10	13-Oct-10	24-May-11	04-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	221	215	240	169	205	159	171	154	190	148	141	129	140	134	147	102	134	126
Aluminum	0.2	0.1	0.020	0.010	0.018	0.023	0.010	0.020	0.025	0.021	0.022	0.091	**0.158**	**0.211**	**0.152**	**0.153**	**0.178**	**0.160**	**0.245**	**0.226**
Ammonia, Total (as N)	N/L	N/L	4.0	4.0	4.1	3.1	2.9	2.9	2.1	2.0	2.5	2.4	1.8	2.0	1.7	1.6	1.8	1.4	2.2	1.8
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.001	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.217	0.236	0.226	0.184	0.205	0.153	0.153	0.145	0.157	0.111	0.130	0.102	0.124	0.121	0.116	0.0915	0.1490	0.1180
Boron	1.3	5.0	0.1	0.1	0.09	0.12	0.10	0.12	0.07	0.07	0.10	0.07	0.0888	0.0622	0.0831	0.113	0.0729	0.0664	0.0790	0.0669
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.000005	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	52.5	55.3	59.1	39.9	48.1	37.9	39.7	36.1	41.1	29.6	32.1	26.5	33.1	32.5	32.6	25.5	35.9	28.8
Chloride	126.0	250	21	20	19.0	11.0	12.0	9.8	10.0	7.7	8.9	6.3	6.0	4.8	5.7	5.2	4.3	3.2	4.4	3.9
Chromium	0.013	0.05	0.004	< 0.02	0.007	0.004	< 0.003	0.001	0.002	0.004	0.003	0.003	0.0034	0.0036	0.0032	0.0035	0.0030	0.0037	0.0028	0.0026
Chemical Oxygen Demand	N/L	N/L	35	36	22	40	42	42	38	32	38	44	35	27	36	34	35	27	16	41
Cobalt	N/L	N/L	0.0019	0.02	0.003	0.002	< 0.003	< 0.003	0.002	0.002	0.004	0.005	0.00556	0.01740	0.00606	0.00650	0.00812	0.0105	0.0112	0.0093
Conductivity (µS/cm) [3]	N/L	N/L	423	305	412	384	361	313	335	323	387	271	279	220	145	258	287	191	302	271
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.001	< 0.001	0.001	0.003	0.002	0.002	0.0020	0.0020	0.0018	0.0013	0.0015	0.0015	0.0023	0.0027
Dissolved Organic Carbon	8.2	5	**6.7**	**8.3**	**6.7**	**8.2**	**7.5**	**7.0**	**7.5**	**5.7**	**5.2**	4.6	**6.0**	4.7	**5.4**	**5.2**	4.7	**8.0**	4.9	**5.3**
Hardness (as $CaCO_3$)	61	100	**189**	**190**	**212**	**139**	**168**	**132**	**137**	**125**	**143**	**103**	**111**	***93***	**116**	**114**	**115**	***91***	**127**	**105**
Iron	0.5	0.3	**37**	**34.6**	**41.0**	**27.0**	**33.6**	**28.0**	**30.1**	**29.4**	**32.3**	**26.4**	**27.8**	**24.8**	**31.9**	**30.7**	**31.8**	**24.9**	**34.0**	**30.6**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.0001	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	14	12.6	15.6	9.62	11.6	9.00	9.27	8.58	9.72	7.07	7.59	6.45	8.20	8.05	8.15	6.59	9.03	7.95
Manganese	0.06	0.05	**5.58**	**5.01**	**6.1**	**4.11**	**5.10**	**3.70**	**3.40**	**3.31**	**4.09**	**2.47**	**3.04**	**2.23**	**2.66**	**2.90**	**2.43**	**1.79**	**2.67**	**1.99**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.44	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.8	**6.42**	7.10	6.50	**6.22**	**6.18**	6.71	6.75	6.59	6.62	6.67	6.61	6.73	6.51	**6.41**	7.23	**6.39**	6.64
Phosphorus, Total	N/L	N/L	1.29	2.15	0.03	< 0.02	< 0.01	0.02	0.03	0.01	0.03	0.02	< 0.01	< 0.01	0.04	0.027	0.014	< 0.009	1.3	0.019
Potassium	N/L	N/L	18.5	16.8	18.4	15.3	16.2	13.9	13.3	13.5	12.7	11.3	10.9	9.7	10.5	8.82	8.88	8.58	11.00	8.82
Silicon	N/L	N/L	15.20	12.60	18.4	15.9	16.2	14.3	14.6	15.5	15.3	15.5	15.2	13.3	16.0	16.3	17.2	15.8	17.4	16.4
Sodium	101.5	200	8.71	9.03	14.1	10.9	12.7	12.5	14.2	15.7	13.3	12.1	10.9	10.7	12.0	10.4	10.1	8.0	9.0	8.5
Strontium	N/L	N/L	0.439	0.409	0.416	0.313	0.365	0.279	0.294	0.265	0.291	0.211	0.229	0.186	0.227	0.221	0.219	0.172	0.244	0.206
Sulphate	255	500	5.0	5.0	1.7	3.5	2.3	5.8	8.0	11.0	9.0	7.4	10	5	5.3	9.9	6.6	7.8	7.6	10.0
Total Kjeldahl Nitrogen	N/L	N/L	4.2	3.8	4.0	3.7	3.0	2.8	2.9	2.1	2.5	2.7	2.3	1.9	2.7	1.7	2.5	1.7	2.4	2.2
Total Dissolved Solids	288	500	260	277	***334***	251	***306***	234	246	263	251	220	194	189	189	200	226	191	222	220
Zinc	2.5	5	0.01	< 0.01	0.002	0.01	< 0.01	< 0.01	0.01	0.02	0.01	0.004	0.003	0.006	0.003	0.007	0.003	0.004	0.003	0.004

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-5											
			12-May-04	11-May-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	06-May-09	10-May-10	24-May-11	26-Apr-12
Alkalinity (as $CaCO_3$)	257	30 - 500	**26**	**15**	**15**	30	**27**	49	**29**	46	**21**	**21**	**20**	41
Aluminum	0.2	0.1	0.022	0.015	0.020	0.020	0.011	0.027	**0.177**	**0.309**	0.0408	0.0962	**0.1130**	**0.1250**
Ammonia, Total (as N)	N/L	N/L	< 0.1	0.1	0.1	0.6	< 0.1	0.2	0.2	0.3	< 0.1	0.2	< 0.1	< 0.1
Arsenic	0.006	0.025	---	---	---	---	---	< 0.0002	---	---	---	---	---	---
Barium	0.26	1.0	0.025	0.020	0.027	0.032	0.032	0.031	0.034	0.042	0.0291	0.0223	0.0292	0.0165
Boron	1.3	5.0	< 0.05	< 0.01	0.004	0.010	0.006	0.006	0.014	0.007	0.0058	0.0075	0.0064	0.0049
Cadmium	0.001	0.005	---	---	---	---	---	0.0001	---	---	---	---	---	---
Calcium	N/L	N/L	5.8	5.1	7.2	10.1	8.8	15.5	21.4	12.3	6.71	7.91	6.45	5.20
Chloride	126.0	250	2.4	3.1	3.9	8.5	8.3	4.5	2.2	3.9	4.2	3.0	4.3	2.9
Chromium	0.013	0.05	< 0.001	< 0.001	< 0.003	< 0.001	< 0.0003	< 0.0005	0.0006	0.0009	< 0.0005	0.0011	0.0006	< 0.0005
Chemical Oxygen Demand	N/L	N/L	11	< 8	< 8	< 8	< 8	< 8	16	9	< 8	< 8	< 8	< 8
Cobalt	N/L	N/L	< 0.0003	< 0.0003	< 0.003	< 0.003	< 0.000007	0.0003	0.0001	0.017	0.0114	0.00842	0.00602	0.00152
Conductivity (µS/cm) [3]	N/L	N/L	52	42	61	73	52	50	50	84	53	74	59	58
Copper	0.5	1	< 0.005	< 0.005	0.001	< 0.001	0.002	0.004	0.003	0.002	0.0008	0.0009	0.0008	0.0010
Dissolved Organic Carbon	8.2	5	< 1	< 1	2.2	0.6	< 1	< 1	< 1	< 1	< 1.0	1.2	1.7	1.1
Hardness (as $CaCO_3$)	61	100	23.9	21.7	28.9	43.1	36.6	***66.6***	***64.2***	51.0	27.1	33.5	25.1	21.1
Iron	0.5	0.3	0.20	0.08	0.06	0.11	0.05	0.21	0.19	**1.51**	0.20	**0.36**	**0.451**	**0.523**
Lead	0.003	0.01	---	---	---	---	---	0.0001	---	---	---	---	---	---
Magnesium	N/L	N/L	2.31	2.16	2.67	4.33	3.55	6.81	2.65	4.93	2.51	3.35	2.20	1.98
Manganese	0.06	0.05	**0.09**	0.01	0.03	**0.61**	**0.19**	**3.46**	**0.08**	**2.88**	**0.153**	**0.718**	**0.309**	**0.219**
Mercury	0.0003	0.001	---	---	---	---	---	< 0.0001	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	0.05	< 0.05	< 0.05	0.08	< 0.05	0.05	< 0.05	0.08	< 0.05	0.05	0.06	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	8.00	6.90	**6.29**	6.79	**6.40**	6.55	6.92	6.63	7.08	7.18	7.17	6.94
Phosphorus, Total	N/L	N/L	1.82	< 0.02	< 0.01	0.02	< 0.01	0.01	0.09	0.03	< 0.01	< 0.01	< 0.009	0.22
Potassium	N/L	N/L	1.33	1.32	1.96	2.51	1.86	4.17	2.06	2.94	1.35	1.94	1.52	1.25
Silicon	N/L	N/L	4.83	4.71	4.55	6.31	5.06	7.47	4.84	6.81	5.77	6.38	5.88	5.89
Sodium	101.5	200	3.04	2.73	3.89	4.37	4.73	5.14	4.23	3.42	2.51	2.59	2.15	1.85
Strontium	N/L	N/L	0.037	0.029	0.045	0.064	0.059	0.090	0.062	0.078	0.0460	0.0464	0.0442	0.0330
Sulphate	255	500	9.0	8.5	10.0	11.0	8.6	12.0	8.9	11.0	11	12	8.6	9.4
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	0.09	7.6	< 0.5	< 0.5	1.1	< 0.5	< 0.5	1.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	77	109	123	94	131	143	126	91	71	37	86	60
Zinc	2.5	5	0.01	0.004	< 0.01	< 0.01	0.01	0.02	0.02	0.01	0.003	0.003	0.007	0.004

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-6								
			19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	09-Oct-08	06-Oct-09	13-Oct-10	04-Oct-11	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	**23**	**26**	31	**26**	**28**	**25**	**17**	**24**	30
Aluminum	0.2	0.1	---	---	---	---	---	---	---	---	---
Ammonia, Total (as N)	N/L	N/L	---	---	---	---	---	---	---	---	---
Arsenic	0.006	0.025	---	---	---	0.0002	---	---	---	---	---
Barium	0.26	1.0	0.01	0.009	0.007	0.007	0.008	0.006	0.0058	0.00535	0.00800
Boron	1.3	5.0	0.01	< 0.01	0.012	0.013	0.012	0.011	0.018	0.0106	0.0153
Cadmium	0.001	0.005	---	---	---	0.00001	---	---	---	---	---
Calcium	N/L	N/L	---	---	6.18	---	---	---	---	---	---
Chloride	126.0	250	0.7	0.7	0.6	0.4	0.4	0.3	0.3	0.2	< 0.2
Chromium	0.013	0.05	< 0.02	< 0.001	< 0.001	0.0005	< 0.0005	< 0.0005	0.0007	0.0009	< 0.0005
Chemical Oxygen Demand	N/L	N/L	---	---	< 8	---	---	---	---	---	---
Cobalt	N/L	N/L	---	---	---	---	---	---	---	---	---
Conductivity (µS/cm) [3]	N/L	N/L	57	74	43	45	38	38	40	43	38
Copper	0.5	1	---	---	---	---	---	---	---	---	---
Dissolved Organic Carbon	8.2	5	< 1	< 1	0.6	< 1	< 1	< 1.0	< 1.0	< 1	< 1
Hardness (as $CaCO_3$)	61	100	29.2	28.4	24.3	25.1	18.3	14.8	15.6	14.1	17.7
Iron	0.5	0.3	0.03	< 0.02	< 0.01	0.02	0.09	0.06	0.061	0.134	0.049
Lead	0.003	0.01	---	---	---	0.0001	---	---	---	---	---
Magnesium	N/L	N/L	2.77	---	2.15	---	---	---	---	---	---
Manganese	0.06	0.05	---	< 0.002	0.005	0.003	0.042	0.032	0.0113	0.00452	0.00880
Mercury	0.0003	0.001	---	---	---	< 0.0001	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	1.43	1.22	0.96	0.91	0.51	0.50	0.54	0.55	0.60
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	**6.49**	**6.06**	6.77	6.68	6.55	**5.84**	6.65	**6.34**	**6.46**
Phosphorus, Total	N/L	N/L	---	---	---	---	---	---	---	---	---
Potassium	N/L	N/L	---	---	---	---	---	---	---	---	---
Silicon	N/L	N/L	---	---	---	---	---	---	---	---	---
Sodium	101.5	200	3.06	5.05	4.83	5.11	2.98	3.09	3.24	3.73	4.14
Strontium	N/L	N/L	---	---	---	---	---	---	---	---	---
Sulphate	255	500	9.3	10	12	9.5	7.1	6.3	4.4	4.5	2.8
Total Kjeldahl Nitrogen	N/L	N/L	---	---	---	---	---	---	---	---	---
Total Dissolved Solids	288	500	66	91	97	94	69	77	46	57	86
Zinc	2.5	5	---	---	---	---	---	---	---	---	---

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH-8																
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	06-Oct-09	10-May-10	13-Oct-10	24-May-11	04-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	260	249	250	253	249	227	183	187	199	208	163	184	209	176	196	144	188	162
Aluminum	0.2	0.1	0.018	< 0.01	0.017	0.021	< 0.01	< 0.01	0.019	0.018	0.029	0.035	0.0379	0.0411	0.0293	0.0386	0.0629	0.0631	0.0867	0.0673
Ammonia, Total (as N)	N/L	N/L	1.5	1.5	2.5	2.7	2.9	4.2	3.0	3.2	4.4	3.5	3.0	3.6	4.0	3.2	4.2	3.4	4.0	3.4
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.168	0.178	0.167	0.198	0.212	0.215	0.175	0.185	0.179	0.185	0.155	0.161	0.201	0.173	0.164	0.150	0.181	0.173
Boron	1.3	5.0	0.12	0.13	0.09	0.16	0.11	0.16	0.09	0.09	0.10	0.08	0.0920	0.0901	0.109	0.146	0.0863	0.0828	0.0926	0.1030
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.00002	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	61.3	68.6	61.9	58.4	56.4	53.5	44.9	42.2	40.5	43.3	36.6	37.2	44.5	39.6	37.1	34.2	37.1	37.7
Chloride	126.0	250	17.0	20.0	17.0	17.0	13.0	12.0	9.7	9.8	8.0	9.4	5.9	6.4	6.8	6.7	5.2	4.1	5.6	4.4
Chromium	0.013	0.05	0.005	< 0.02	0.006	0.004	< 0.003	0.002	0.003	0.005	0.003	0.003	0.0029	0.0036	0.0031	0.0038	0.0027	0.0040	0.0028	0.0030
Chemical Oxygen Demand	N/L	N/L	38	33	42	36	40	45	20	29	27	30	22	27	29	34	29	27	33	40
Cobalt	N/L	N/L	0.006	0.02	0.005	0.005	< 0.003	< 0.003	0.004	0.004	0.004	0.012	0.0152	0.0129	0.0109	0.00989	0.00815	0.0112	0.0051	0.0105
Conductivity (µS/cm) [3]	N/L	N/L	430	339	431	568	423	383	322	347	340	366	291	292	337	324	283	293	305	322
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.003	< 0.001	0.002	0.004	0.003	0.002	0.0022	0.0026	0.0014	0.0021	0.0033	0.0044	0.0041	0.0030
Dissolved Organic Carbon	8.2	5	**7.4**	**6.5**	**6.4**	**6.7**	**8.4**	**6.2**	4.8	**5.7**	4.6	**10.2**	4.3	3.7	**5.6**	**5.2**	4.8	**5.9**	**5.5**	**5.2**
Hardness (as $CaCO_3$)	61	100	**229**	**246**	**230**	**211**	**203**	**190**	**161**	**152**	**144**	**153**	**129**	**131**	**156**	**136**	**130**	**120**	**129**	**131**
Iron	0.5	0.3	**31.3**	**28.7**	**29.5**	**27.3**	**28.6**	**26.9**	**23.5**	**22.5**	**21.6**	**24.1**	**20.6**	**22.1**	**26.6**	**23.1**	**23.2**	**21.3**	**23.5**	**24.7**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.0001	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	18.4	18.0	18.4	15.9	15.2	13.7	11.8	11.2	10.5	11.0	9.15	9.25	10.9	9.11	8.98	8.39	8.82	9.06
Manganese	0.06	0.05	**6.48**	**6.74**	**7.04**	**7.46**	**7.40**	**6.85**	**4.87**	**4.96**	**5.10**	**5.23**	**4.46**	**4.47**	**5.60**	**4.98**	**4.12**	**3.51**	**4.36**	**4.51**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.06	0.11	0.06	0.14	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	7.2	**6.48**	7.10	6.55	**6.34**	**6.38**	6.54	6.52	**6.45**	6.57	6.80	6.76	6.60	6.65	**6.42**	7.08	**6.49**	**6.37**
Phosphorus, Total	N/L	N/L	0.1	0.31	< 0.02	< 0.02	< 0.01	0.02	< 0.01	< 0.01	0.02	0.01	< 0.01	< 0.01	0.02	0.025	< 0.009	< 0.009	0.12	0.013
Potassium	N/L	N/L	13	12.5	15.3	16.9	17.7	19.6	17.1	19.5	17.7	19.1	16.2	17.1	19.1	15.8	15.4	16.6	17.1	17.3
Silicon	N/L	N/L	14.9	13.5	16.0	16.2	15.0	15.9	14.8	17.2	14.8	16.5	14.6	14.6	15.9	17.4	16.5	17.6	16.2	18.0
Sodium	101.5	200	12.6	10.7	14.5	13.0	13.5	13.9	12.5	13.3	12.5	12.6	11.2	12.3	13.4	12.6	11.5	11.1	10.1	11.3
Strontium	N/L	N/L	0.425	0.420	0.387	0.449	0.416	0.388	0.331	0.319	0.299	0.325	0.272	0.278	0.328	0.294	0.273	0.259	0.278	0.292
Sulphate	255	500	7.3	5.9	8.3	5.1	8.6	7.0	14.0	9.9	11	10	13	13	8.1	8.2	8.3	10.0	8.9	8.1
Total Kjeldahl Nitrogen	N/L	N/L	2.0	1.9	3.0	2.6	3.0	6.4	3.0	3.3	4.8	3.6	3.2	3.4	4.2	3.4	4.8	3.7	3.8	3.4
Total Dissolved Solids	288	500	***303***	***334***	***354***	***323***	***351***	***323***	269	286	271	266	186	251	257	260	257	231	260	231
Zinc	2.5	5	0.004	< 0.01	0.005	0.01	0.03	< 0.01	0.01	0.02	0.01	0.003	0.003	0.005	0.002	0.007	0.003	0.005	0.003	0.002

Notes:
1. Reasonable Use Concept (RUC) criteria.
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Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH95-9																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	06-Oct-09	10-May-10	13-Oct-10	24-May-11	04-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	89	100	90	118	83	103	89	101	83	89	65	98	72	76	67	74	35	82
Aluminum	0.2	0.1	0.005	< 0.01	< 0.004	< 0.004	< 0.01	< 0.01	0.003	0.003	**0.213**	0.009	0.0355	0.0250	0.0137	0.0131	0.0318	0.0342	0.0515	0.0106
Ammonia, Total (as N)	N/L	N/L	< 0.1	< 0.1	0.2	0.2	0.1	0.2	0.1	< 0.1	0.3	0.1	< 0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.041	0.048	0.038	0.056	0.043	0.054	0.041	0.047	0.043	0.043	0.0300	0.0409	0.0327	0.0343	0.0312	0.0391	0.0280	0.0360
Boron	1.3	5.0	0.07	0.08	0.06	0.07	0.05	0.08	0.06	0.07	0.07	0.05	0.0482	0.0516	0.0447	0.044	0.0374	0.0524	0.0303	0.0724
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.00003	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	24	25.1	23.2	28.7	23.1	28.1	24.8	26.6	42.2	23.9	17.4	24.0	19.0	19.7	18.9	21.6	15.0	21.6
Chloride	126.0	250	5.7	7	7.8	11	10	9.4	13	11	12	10	6.8	5.6	5.0	5.4	6.0	5.6	4.1	5.1
Chromium	0.013	0.05	0.002	< 0.02	0.002	< 0.001	< 0.003	< 0.001	< 0.0003	0.001	0.001	0.001	< 0.0005	0.0007	0.0009	0.0008	0.0006	0.0013	< 0.0005	< 0.0005
Chemical Oxygen Demand	N/L	N/L	< 8	< 8	10	< 8	8	< 8	< 8	< 8	12	< 8	< 8	< 8	11	10	10	< 8	9	10
Cobalt	N/L	N/L	0.001	< 0.01	0.001	0.002	< 0.003	< 0.003	0.001	0.001	0.001	0.010	0.0184	0.0099	0.00736	0.00430	0.00526	0.00890	0.00725	0.00817
Conductivity (µS/cm) [3]	N/L	N/L	175	150	178	311	202	204	183	204	181	188	132	169	136	152	131	146	115	162
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.003	< 0.001	0.001	0.004	0.002	0.001	0.0013	0.0009	0.0008	0.0005	0.0011	0.0010	0.0010	0.0013
Dissolved Organic Carbon	8.2	5	1.5	1.5	1.8	2.0	3.5	2.2	2.0	1.9	1.4	1.0	1.7	1.7	2.3	2.6	2.6	2.3	2.2	2.1
Hardness (as $CaCO_3$)	61	100	**109**	**109**	**108**	**131**	**104**	**126**	**112**	**120**	**153**	**109**	***78.1***	**108.0**	***85.2***	***87.4***	***83.9***	***97.3***	***67.6***	***96.2***
Iron	0.5	0.3	**10.5**	**9.59**	**9.98**	**11.90**	**9.77**	**10.90**	**8.34**	**7.78**	**6.84**	**6.87**	**5.68**	**7.38**	**5.70**	**5.76**	**6.38**	**6.41**	**5.26**	**1.31**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.00005	---	---	---		---	---	---	---	---	---
Magnesium	N/L	N/L	11.9	11.3	12.3	14.4	11.2	13.7	12.2	13.1	11.6	11.9	8.44	11.70	9.15	9.26	8.93	10.60	7.36	10.20
Manganese	0.06	0.05	**0.28**	**0.28**	**0.29**	**0.34**	**0.28**	**0.31**	**0.21**	**0.20**	**0.19**	**0.23**	**0.193**	**0.225**	**0.199**	**0.175**	**0.175**	**0.172**	**0.171**	**0.182**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05	0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.19
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.9	**6.49**	6.9	6.5	6.69	6.82	7.11	6.71	6.58	6.61	6.74	6.53	6.60	6.51	6.52	**6.21**	**6.47**	6.72
Phosphorus, Total	N/L	N/L	0.08	0.29	< 0.02	< 0.02	< 0.01	0.01	< 0.01	< 0.01	0.07	0.01	< 0.01	< 0.01	0.01	0.011	0.014	< 0.009	0.37	0.01
Potassium	N/L	N/L	2.47	2.46	2.26	3.42	2.93	3.25	2.83	3.03	2.82	2.53	2.10	2.53	2.30	2.41	2.12	2.59	2.18	3.84
Silicon	N/L	N/L	8.12	6.93	9.37	9.57	9.28	9.36	8.61	9.55	8.90	9.15	8.92	8.55	9.63	10.40	10.30	10.50	10.10	8.24
Sodium	101.5	200	6.13	8.42	6.96	9.82	7.77	9.10	8.39	8.99	7.10	5.94	4.29	6.01	5.03	5.23	4.66	5.91	3.84	7.58
Strontium	N/L	N/L	0.129	0.133	0.113	0.157	0.123	0.150	0.136	0.142	0.137	0.132	0.0953	0.1280	0.0991	0.105	0.101	0.120	0.083	0.119
Sulphate	255	500	16	18	17	21	16	19	15	20	19	16	12	16	15	16	12	11	11	17
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	< 0.5	0.7	0.2	0.6	< 0.5	< 0.5	2.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	114	166	**626**	177	169	180	154	206	154	149	83	137	123	151	134	146	100	143
Zinc	2.5	5	0.01	< 0.01	0.003	0.01	< 0.01	< 0.01	0.01	0.02	0.01	0.003	0.004	0.004	0.002	0.003	0.005	0.006	0.002	< 0.002

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH95-10								
			19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	09-Oct-08	06-Oct-09	13-Oct-10	04-Oct-11	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	48	46	50	41	34	42	50	40	43
Aluminum	0.2	0.1	---	---	---	---	---	---	---	---	---
Ammonia, Total (as N)	N/L	N/L	---	---	---	---	---	---	---	---	---
Arsenic	0.006	0.025	---	---	---	0.0002	---	---	---	---	---
Barium	0.26	1.0	0.014	0.015	0.019	0.016	0.014	0.014	0.0179	0.0142	0.0158
Boron	1.3	5.0	0.04	0.03	0.04	0.03	0.02	0.02	0.042	0.033	0.039
Cadmium	0.001	0.005	---	---	---	0.00001	---	---	---	---	---
Calcium	N/L	N/L	---	---	17.4	---	---	---	---	---	---
Chloride	126.0	250	5.4	7.5	11	10	8	6	8	4	8
Chromium	0.013	0.05	< 0.02	< 0.001	< 0.001	< 0.0005	< 0.0005	0.0007	0.0006	0.0007	< 0.0005
Chemical Oxygen Demand	N/L	N/L	---	---	< 8	---	---	---	---	---	---
Cobalt	N/L	N/L	---	---	---	---	---	---	---	---	---
Conductivity (µS/cm) [3]	N/L	N/L	93	165	125	109	94	83	120	92	119
Copper	0.5	1	---	---	---	---	---	---	---	---	---
Dissolved Organic Carbon	8.2	5	1	< 1	0.7	1.1	< 1	< 1.0	1.2	3.3	< 1
Hardness (as $CaCO_3$)	61	100	59.6	57.0	***72.9***	58.8	48.7	45.7	***63.2***	51.0	60.1
Iron	0.5	0.3	< 0.02	< 0.02	< 0.01	< 0.01	0.05	0.09	0.029	0.064	0.026
Lead	0.003	0.01	---	---	---	0.0002	---	---	---	---	---
Magnesium	N/L	N/L	5.68	---	7.19	---	---	---	---	---	---
Manganese	0.06	0.05	---	< 0.002	< 0.001	0.0006	0.027	0.015	0.0109	0.0124	0.0018
Mercury	0.0003	0.001	---	---	---	< 0.0001	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	0.84	0.80	1.06	0.81	***2.79***	0.58	1.18	0.63	0.91
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.71	6.72	**6.33**	6.96	7.26	6.60	6.50	7.44	6.54
Phosphorus, Total	N/L	N/L	---	---	---	---	---	---	---	---	---
Potassium	N/L	N/L	---	---	---	---	---	---	---	---	---
Silicon	N/L	N/L	---	---	---	---	---	---	---	---	---
Sodium	101.5	200	4.39	6.40	7.21	6.05	4.17	4.08	4.78	4.28	5.16
Strontium	N/L	N/L	---	---	---	---	---	---	---	---	---
Sulphate	255	500	12	12	14	11	10	9	14	10	11
Total Kjeldahl Nitrogen	N/L	N/L	---	---	---	---	---	---	---	---	---
Total Dissolved Solids	288	500	100	91	126	120	89	60	106	80	114
Zinc	2.5	5	---	---	---	---	---	---	---	---	---

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH01-12D																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	**17**	**29**	**10**	**8**	**12**	**14**	**16**	**17**	**15**	**28**	**12**	**21**	**14**	**15**	**12**	**13**	**28**	**11**
Aluminum	0.2	0.1	0.060	0.050	0.042	0.036	0.050	0.060	0.065	0.064	**0.180**	0.099	**0.121**	**0.140**	**0.154**	**0.116**	**0.221**	**0.118**	**0.179**	**0.122**
Ammonia, Total (as N)	N/L	N/L	0.1	< 0.1	< 0.1	< 0.1	0.2	0.6	0.1	0.1	0.3	< 0.1	0.2	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.0006	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.013	0.012	0.011	0.013	0.014	0.015	0.014	0.015	0.025	0.016	0.0159	0.0160	0.0168	0.0164	0.0184	0.0151	0.0153	0.0131
Boron	1.3	5.0	< 0.05	0.01	< 0.01	0.01	0.004	0.016	0.007	0.004	0.018	0.006	0.0057	0.0064	0.0071	0.021	0.005	0.006	0.006	0.005
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.00001	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	4.17	3.17	3.91	5.20	5.10	5.01	5.85	5.20	14.20	5.11	5.29	4.91	5.63	5.21	5.40	4.99	4.67	4.13
Chloride	126.0	250	1.4	1.5	2.4	1.5	1.2	1.1	2.1	1.3	1.5	2.2	1.5	1.4	1.6	1.7	1.7	1.5	1.8	1.2
Chromium	0.013	0.05	0.002	< 0.02	0.002	0.001	< 0.003	0.001	0.002	0.002	0.002	0.002	0.0024	0.0022	0.0026	0.0025	0.0025	0.0028	0.0028	0.0016
Chemical Oxygen Demand	N/L	N/L	31	10	16	< 8	19	19	22	20	30	24	25	30	33	30	42	26	< 8	22
Cobalt	N/L	N/L	0.002	< 0.01	0.002	0.001	< 0.003	< 0.003	0.002	0.002	0.002	0.003	0.00908	0.00595	0.00986	0.00760	0.00754	0.00814	0.00765	0.00661
Conductivity (µS/cm) [3]	N/L	N/L	56	32	46	67	52	50	54	58	53	63	56	57	56	60	54	58	47	52
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.003	< 0.001	0.003	0.005	0.005	0.002	0.0026	0.0043	0.0032	0.0032	0.0058	0.0030	0.0028	0.0034
Dissolved Organic Carbon	8.2	5	**5.5**	2.1	2.2	2.2	**5.2**	4.3	**6.3**	**5.9**	**6.5**	**5.1**	4.1	4.4	**8.8**	**8.6**	**6.7**	**8.9**	**12.0**	**5.2**
Hardness (as $CaCO_3$)	61	100	17.5	13.7	16.6	19.4	21.0	21.0	24.7	22.6	45.8	21.8	22.1	20.7	23.5	21.4	22.1	20.4	19.0	17.3
Iron	0.5	0.3	**8.39**	**6.78**	**6.86**	**6.83**	**7.71**	**8.21**	**9.67**	**9.62**	**9.97**	**9.57**	**10.2**	**9.8**	**10.3**	**9.27**	**10.60**	**9.36**	**8.90**	**7.84**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.0001	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	1.71	1.40	1.65	1.56	2.00	2.07	2.45	2.34	2.48	2.20	2.17	2.04	2.29	2.04	2.09	1.93	1.79	1.70
Manganese	0.06	0.05	**0.08**	**0.05**	**0.07**	**0.05**	**0.07**	**0.06**	**0.07**	**0.07**	**0.11**	**0.09**	**0.0935**	**0.0844**	**0.0947**	**0.100**	**0.0741**	**0.0702**	**0.0805**	**0.0601**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.65	< 0.05	< 0.05	0.06	< 0.05	0.14	0.07	< 0.05	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	7.0	6.66	**6.30**	6.65	**6.07**	**6.46**	**6.29**	6.61	**6.33**	6.58	6.87	**6.07**	6.51	6.59	6.55	7.56	**6.18**	**6.30**
Phosphorus, Total	N/L	N/L	1.87	1.19	< 0.02	< 0.02	0.03	0.01	< 0.01	0.02	0.07	0.02	< 0.01	< 0.01	0.02	0.028	0.016	< 0.009	0.53	< 0.009
Potassium	N/L	N/L	1.16	1.09	1.19	1.81	1.63	1.69	1.64	1.69	1.62	1.44	1.29	1.38	1.33	1.44	1.21	1.37	1.22	1.28
Silicon	N/L	N/L	7.91	6.29	8.42	8.32	8.19	8.72	8.57	9.53	8.74	9.35	9.07	8.64	9.65	9.94	9.99	10.0	9.7	9.8
Sodium	101.5	200	2.10	2.14	2.48	4.27	3.83	4.09	4.02	3.90	3.82	2.46	2.06	2.35	2.20	2.36	2.20	2.24	1.88	2.16
Strontium	N/L	N/L	0.026	0.023	0.021	0.028	0.031	0.032	0.037	0.033	0.044	0.032	0.0328	0.0313	0.0329	0.0321	0.0322	0.0305	0.0278	0.0268
Sulphate	255	500	6.3	6.2	6.4	8.5	8.5	9.4	9.5	9.4	11	10	10	8	6.1	7.1	6.0	5.3	5.0	5.6
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.21	0.64	< 0.5	< 0.5	1.1	< 0.5	< 0.5	< 0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	74	69	< 30	74	77	89	77	106	106	91	74	54	74	77	91	57	80	86
Zinc	2.5	5	0.01	< 0.01	0.004	0.005	< 0.01	< 0.01	0.01	0.02	0.01	0.002	0.005	0.004	0.003	0.003	0.005	0.005	0.003	0.002

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH01-13S							
			12-May-04	11-May-05	8-May-06	30-Apr-07	20-May-08	6-May-09	24-May-11	26-Apr-12
Alkalinity (as $CaCO_3$)	257	30 - 500	71	34	43	78	45	68	56	***393***
Aluminum	0.2	0.1	0.007	0.017	0.020	0.007	0.025	0.0247	**0.1320**	**0.2060**
Ammonia, Total (as N)	N/L	N/L	< 0.1	0.3	0.1	< 0.1	0.6	0.1	< 0.1	< 0.1
Arsenic	0.006	0.025	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.018	0.011	0.017	0.028	0.016	0.0307	0.0251	0.0116
Boron	1.3	5.0	< 0.05	< 0.01	0.018	0.039	0.018	0.0232	0.0186	0.0190
Cadmium	0.001	0.005	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	14.00	6.70	9.64	16.8	9.28	16.4	13.8	7.2
Chloride	126.0	250	1.8	2.4	2.6	1.6	1.0	1.5	1.2	1.4
Chromium	0.013	0.05	0.001	< 0.001	< 0.003	< 0.0003	< 0.0005	< 0.0005	0.0005	< 0.0005
Chemical Oxygen Demand	N/L	N/L	< 8	< 8	< 8	9	< 8	< 8	< 8	< 8
Cobalt	N/L	N/L	< 0.0003	< 0.0003	< 0.003	0.00003	0.0001	0.00664	0.00446	0.00129
Conductivity (µS/cm) [3]	N/L	N/L	104	68	104	120	64	99	84	70
Copper	0.5	1	< 0.005	< 0.005	0.006	0.002	0.002	0.0010	0.0014	0.0013
Dissolved Organic Carbon	8.2	5	1.1	1.4	2.7	1.3	< 1	< 1.0	2.4	1.5
Hardness (as $CaCO_3$)	61	100	59.1	28.4	39.4	***69.1***	37.6	***65.8***	54.9	28.1
Iron	0.5	0.3	0.24	0.2	0.27	0.08	0.10	0.12	0.297	**0.316**
Lead	0.003	0.01	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	5.9	2.84	3.72	6.61	3.51	6.06	4.96	2.47
Manganese	0.06	0.05	0.02	0.004	0.005	0.005	0.002	0.0160	0.0152	0.0116
Mercury	0.0003	0.001	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	0.56	1.48	1.65	0.88	0.27	0.90	0.55	1.02
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	7.30	7.40	6.69	6.84	6.75	6.98	6.56	6.56
Phosphorus, Total	N/L	N/L	0.68	< 0.02	0.01	< 0.01	0.01	< 0.01	0.012	0.42
Potassium	N/L	N/L	1.78	1.45	2.25	2.73	2.52	2.79	2.73	2.16
Silicon	N/L	N/L	3.95	4.23	4.29	4.85	4.58	5.01	5.35	5.49
Sodium	101.5	200	9.20	7.15	14.80	14.50	5.77	4.43	4.00	3.04
Strontium	N/L	N/L	0.095	0.039	0.062	0.109	0.057	0.109	0.088	0.042
Sulphate	255	500	9.0	5.8	7.0	8.6	4.0	6.2	5.3	4.6
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	0.23	< 0.5	0.8	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	100	97	100	103	60	97	89	86
Zinc	2.5	5	0.01	0.004	0.01	0.03	0.01	0.002	0.003	0.006

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH01-13D																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	140	150	128	126	127	118	132	107	118	101	118	109	97	91	91	87	84	81
Aluminum	0.2	0.1	0.012	< 0.01	0.008	0.014	< 0.01	0.020	0.010	0.011	0.017	0.028	0.0602	0.0397	0.0977	0.0538	0.0874	0.0502	**0.1020**	0.0706
Ammonia, Total (as N)	N/L	N/L	0.2	0.3	0.3	0.2	0.2	0.7	0.2	0.3	0.6	0.3	0.4	0.1	0.5	0.3	0.4	0.4	0.3	0.3
Arsenic	0.006	0.025	---	---	---	---	---	---	---	0.001	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.070	0.086	0.067	0.064	0.067	0.066	0.067	0.062	0.064	0.059	0.0734	0.0634	0.0645	0.0646	0.0641	0.0664	0.0644	0.0598
Boron	1.3	5.0	0.070	0.080	0.070	0.080	0.058	0.071	0.064	0.052	0.060	0.045	0.0559	0.0476	0.0527	0.0600	0.0470	0.0452	0.0468	0.0470
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.00002	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	33.9	41.5	35.7	33.3	34.7	32.8	34.3	28.0	28.1	24.4	29.4	26.8	25.4	23.1	23.6	23.8	22.0	23.0
Chloride	126.0	250	8.4	13.0	11.0	11.0	10.0	9.1	8.2	6.5	6.1	6.7	5.8	4.9	4.8	5.1	3.6	3.5	3.6	4.3
Chromium	0.013	0.05	0.002	< 0.02	0.003	0.001	< 0.003	< 0.001	0.001	0.002	0.001	0.001	0.0010	0.0015	0.0016	0.0014	0.0010	0.0017	0.0010	0.0008
Chemical Oxygen Demand	N/L	N/L	24	17	11	20	19	16	12	17	20	12	20	12	22	19	18	15	11	27
Cobalt	N/L	N/L	0.004	< 0.01	0.003	0.003	< 0.003	< 0.003	0.003	0.003	0.003	0.008	0.0175	0.0126	0.00940	0.00711	0.00759	0.00976	0.00276	0.00621
Conductivity (µS/cm) [3]	N/L	N/L	240	221	243	316	264	212	208	196	175	188	191	186	160	174	157	170	115	181
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.002	< 0.001	0.002	0.004	0.002	0.001	0.0033	0.0020	0.0050	0.0026	0.0044	0.0025	0.0025	0.0029
Dissolved Organic Carbon	8.2	5	3.4	3.0	3.0	2.7	4.7	3.2	3.7	3.8	3.0	2.0	2.4	2.6	4.1	**9.4**	2.5	4.4	3.6	3.3
Hardness (as $CaCO_3$)	61	100	**148**	**170**	**157**	**142**	**145**	**138**	**143**	**119**	**117**	**102**	**119**	**111**	**104**	***93***	***97***	***98***	***89***	***95***
Iron	0.5	0.3	**13.70**	**14.60**	**13.20**	**10.10**	**10.10**	**8.04**	**9.93**	**7.83**	**8.28**	**7.15**	**10.0**	**8.6**	**8.37**	**8.00**	**7.54**	**7.47**	**7.54**	**6.28**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.00008	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	15.3	16.2	16.4	14.4	14.3	13.7	13.9	11.9	11.4	10.1	11.0	10.6	9.87	8.56	9.16	9.39	8.19	9.11
Manganese	0.06	0.05	**1.18**	**1.35**	**1.42**	**1.24**	**1.42**	**1.31**	**1.26**	**1.01**	**1.26**	**1.01**	**1.52**	**1.24**	**1.32**	**1.37**	**1.30**	**1.18**	**1.28**	**1.15**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.16	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.5	< 0.05	< 0.05	< 0.05	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	6.80	**6.48**	7.00	**6.49**	**6.34**	6.55	6.51	6.55	6.51	6.92	6.72	**6.45**	6.71	6.71	**6.27**	7.39	**6.47**	**6.36**
Phosphorus, Total	N/L	N/L	2.64	0.84	< 0.02	< 0.02	< 0.01	0.03	0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.02	0.01	< 0.009	< 0.009	0.99	0.009
Potassium	N/L	N/L	2.53	2.67	2.52	3.55	3.72	3.77	3.91	3.97	4.22	3.79	4.23	4.20	4.38	4.37	4.15	4.78	4.80	4.78
Silicon	N/L	N/L	9.83	8.89	11.40	11.10	10.40	10.60	10.30	11.70	10.90	11.20	11.1	10.7	11.5	11.8	11.5	12.2	11.5	11.8
Sodium	101.5	200	7.85	8.61	8.34	9.07	8.94	9.23	9.69	8.67	8.58	6.75	7.05	7.03	6.69	6.67	6.15	6.06	5.42	5.37
Strontium	N/L	N/L	0.171	0.194	0.167	0.173	0.181	0.178	0.190	0.159	0.160	0.144	0.173	0.159	0.151	0.142	0.146	0.149	0.138	0.150
Sulphate	255	500	17	19	22	19	16	24	16	18	17	15	14	20	14	18	17	15	13	16
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.4	0.7	< 0.5	< 0.5	2.1	< 0.5	< 0.5	< 0.5	1.0	< 0.5	0.6	0.5	0.5	< 0.5
Total Dissolved Solids	288	500	189	214	214	206	220	211	189	200	191	151	191	157	163	160	177	154	129	157
Zinc	2.5	5	0.01	< 0.01	0.003	0.01	< 0.01	< 0.01	0.02	0.02	0.01	0.003	0.003	0.005	0.003	0.002	0.002	0.004	0.004	< 0.002

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH01-14																
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	06-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	103	115	92	90	84	79	91	83	92	83	77	86	70	72	63	63	50	69
Aluminum	0.2	0.1	0.019	0.01	0.008	0.016	< 0.01	0.020	0.009	0.015	0.033	**0.118**	**0.103**	**0.240**	**0.186**	**0.167**	**0.342**	**0.109**	**0.263**	**0.285**
Ammonia, Total (as N)	N/L	N/L	< 0.1	0.2	0.1	< 0.1	0.1	0.3	0.1	0.2	0.2	< 0.1	0.2	< 0.1	0.2	< 0.1	0.3	0.1	0.3	0.2
Arsenic	0.006	0.025	---	---	---	---	---	---	---	< 0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.044	0.055	0.047	0.048	0.050	0.052	0.054	0.050	0.053	0.047	0.0475	0.0525	0.0534	0.0476	0.0484	0.0447	0.0492	0.0535
Boron	1.3	5.0	< 0.05	0.050	0.040	0.050	0.046	0.054	0.046	0.042	0.044	0.035	0.0347	0.0339	0.0377	0.0440	0.0299	0.0323	0.0313	0.0397
Cadmium	0.001	0.005	---	---	---	---	---	---	---	0.00001	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	24.6	32.5	27.8	23.9	24.3	23.7	25.9	21.9	23.2	18.7	19.5	20.7	20.6	17.9	16.2	17.7	16.8	19.0
Chloride	126.0	250	3.8	8.4	7.2	5.9	6.8	6.5	7.1	5.7	5.1	5.4	5.1	4.8	4.4	3.9	3.1	3.0	3.3	3.3
Chromium	0.013	0.05	0.001	< 0.02	0.002	< 0.001	< 0.003	< 0.001	< 0.0003	0.001	< 0.0005	0.0008	0.0007	0.0014	0.0011	0.0012	0.0015	0.0014	0.0010	0.0012
Chemical Oxygen Demand	N/L	N/L	< 8	11	< 8	< 8	20	< 8	9	16	11	20	11	38	14	13	< 8	< 8	9	17
Cobalt	N/L	N/L	0.001	< 0.01	0.001	0.001	< 0.003	< 0.003	0.001	0.001	0.001	0.014	0.0154	0.0081	0.00578	0.00781	0.00675	0.00706	0.00664	0.00889
Conductivity (µS/cm) [3]	N/L	N/L	200	175	190	250	196	169	181	169	171	155	146	153	144	136	123	141	132	149
Copper	0.5	1	< 0.005	< 0.005	< 0.005	< 0.005	0.001	< 0.001	0.001	0.004	0.002	0.003	0.0028	0.0050	0.0038	0.0047	0.0074	0.0027	0.0035	0.0061
Dissolved Organic Carbon	8.2	5	1.8	2.8	1.5	2.3	4.2	1.7	2.3	2.3	2.5	1.4	1.5	1.9	3.2	**10.6**	2.4	3.7	3.1	2.3
Hardness (as $CaCO_3$)	61	100	**106**	**135**	**125**	**105**	**107**	**106**	**116**	**101**	**105**	***86***	***88.1***	***93.6***	***92.8***	***78.7***	***72.0***	***78.6***	***73.4***	***82.5***
Iron	0.5	0.3	**6.12**	**6.32**	**7.19**	**6.31**	**7.24**	**8.14**	**9.73**	**8.73**	**9.37**	**7.92**	**8.00**	**8.80**	**8.07**	**6.56**	**6.78**	**6.35**	**6.57**	**6.87**
Lead	0.003	0.01	---	---	---	---	---	---	---	0.00005	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	10.8	13.1	13.5	11.1	11.1	11.3	12.5	11.3	11.5	9.5	9.57	10.20	10.0	8.3	7.69	8.36	7.63	8.49
Manganese	0.06	0.05	**0.26**	**0.29**	**0.36**	**0.29**	**0.32**	**0.32**	**0.29**	**0.26**	**0.28**	**0.27**	**0.276**	**0.288**	**0.285**	**0.320**	**0.253**	**0.256**	**0.326**	**0.475**
Mercury	0.0003	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05	1.60	< 0.05	< 0.05	0.05	0.27	< 0.05
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	7.30	**6.45**	6.80	6.54	**6.28**	**6.41**	**6.44**	6.58	**6.46**	6.52	6.63	**6.40**	6.61	**6.45**	**6.39**	**6.09**	6.51	**6.48**
Phosphorus, Total	N/L	N/L	4.78	4.3	0.02	< 0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.03	0.012	0.016	< 0.009	1.74	0.013
Potassium	N/L	N/L	2.34	2.31	2.36	3.01	3.21	3.07	3.21	3.15	3.27	2.54	2.77	2.88	3.05	2.88	2.60	2.92	3.17	3.62
Silicon	N/L	N/L	8.64	7.27	9.34	10.00	8.72	9.04	8.86	9.61	9.09	9.22	9.38	9.17	10.1	10.5	10.5	10.6	10.8	11.9
Sodium	101.5	200	4.43	6.71	5.32	7.86	5.95	6.26	6.46	6.21	5.79	4.00	3.89	4.48	4.18	4.28	3.63	4.00	3.55	4.35
Strontium	N/L	N/L	0.124	0.146	0.131	0.123	0.129	0.134	0.146	0.130	0.131	0.115	0.115	0.121	0.114	0.100	0.093	0.101	0.096	0.112
Sulphate	255	500	18	20	27	20	19	25	22	21	22	15	16	18	18	15	14	17	15	15
Total Kjeldahl Nitrogen	N/L	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.2	0.4	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	180	183	200	203	200	189	169	186	151	154	126	143	154	146	143	137	138	143
Zinc	2.5	5	0.02	< 0.01	0.01	0.01	< 0.01	< 0.01	0.01	0.02	0.01	0.01	0.004	0.004	0.003	0.004	0.005	0.006	< 0.002	0.004

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	RUC [1]	ODWS [2]	BH01-15		R-1																	
			12-Oct-06	15-Oct-07	12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	257	30 - 500	**10**	**14**	**25**	33	**23**	**27**	**21**	34	**25**	36	**23**	**29**	**23**	33	30	30	**23**	32	**26**	38
Aluminum	0.2	0.1	---	---	< 0.004	0.01	< 0.004	< 0.004	< 0.01	< 0.01	0.002	0.002	0.010	0.003	0.0030	0.0034	0.0029	0.0016	0.0038	0.0018	0.009	0.003
Ammonia, Total (as N)	N/L	N/L	---	---	< 0.1	0.3	0.1	< 0.1	< 0.04	< 0.04	< 0.1	0.1	< 0.1	0.1	0.2	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1
Arsenic	0.006	0.025	---	0.0002	---	---	---	---	---	---	---	< 0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.26	1.0	0.004	0.005	0.013	0.016	0.012	0.013	0.013	0.015	0.012	0.014	0.012	0.011	0.0123	0.0127	0.0140	0.0140	0.0130	0.0136	0.014	0.012
Boron	1.3	5.0	0.004	0.002	< 0.05	< 0.01	< 0.01	< 0.01	0.002	0.005	0.006	0.004	0.007	0.005	0.0049	0.0058	0.0066	0.0060	0.0050	0.0054	0.005	0.007
Cadmium	0.001	0.005	---	0.00007	---	---	---	---	---	---	---	0.000005	---	---	---	---	---	---	---	---	---	---
Calcium	N/L	N/L	3.02	---	5.94	8.07	7.21	7.64	6.25	10.30	6.17	10.30	5.18	7.06	5.57	8.30	8.78	8.85	5.54	9.25	7.33	7.90
Chloride	126.0	250	2.0	2.4	0.5	0.6	0.6	0.6	0.5	0.4	0.6	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.2	0.4	< 0.2
Chromium	0.013	0.05	< 0.001	< 0.0005	< 0.001	< 0.02	< 0.001	< 0.001	< 0.003	< 0.001	< 0.0003	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0006	< 0.0005	< 0.0005
Chemical Oxygen Demand	N/L	N/L	< 8	---	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	< 8	14	< 8	< 8	11	< 8	< 8	8
Cobalt	N/L	N/L	---	---	< 0.0003	< 0.01	< 0.0003	< 0.0003	< 0.003	< 0.003	< 0.000007	0.00003	0.00003	0.00015	0.00018	0.00011	0.000091	0.000061	0.000094	0.000059	0.00007	0.00006
Conductivity (µS/cm) [3]	N/L	N/L	25	54	55	47	47	79	132	128	128	125	41	53	59	60	61	87	54	69	56	61
Copper	0.5	1	---	---	0.056	0.045	0.051	0.027	0.029	0.061	0.058	0.025	0.060	0.040	0.0852	0.0830	0.0343	0.0893	0.0527	0.0709	0.125	0.166
Dissolved Organic Carbon	8.2	5	0.5	< 1	1.2	1.6	1.1	< 1	2.7	0.7	< 1	< 1	< 1	< 1	< 1.0	< 1.0	< 1.0	1.6	1.2	1.7	1.2	< 1
Hardness (as $CaCO_3$)	61	100	13.4	17.8	24.4	29.1	28.3	27.0	24.4	34.9	25.4	34.5	20.9	24.6	23.1	29.5	31.7	30.9	23.7	32.9	27.7	28.2
Iron	0.5	0.3	< 0.01	0.01	0.12	0.02	< 0.02	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02	0.01	0.01	< 0.01	0.015	0.013	0.016	< 0.003	< 0.003
Lead	0.003	0.01	---	0.00004	---	---	---	---	---	---	---	0.0006	---	---	---	---	---	---	---	---	---	---
Magnesium	N/L	N/L	1.43	---	2.34	2.18	2.49	1.94	2.14	2.22	2.42	2.15	1.94	1.70	2.24	2.14	2.37	2.15	2.39	2.37	2.29	2.05
Manganese	0.06	0.05	0.01	0.02	0.003	< 0.002	< 0.002	0.002	< 0.001	0.002	0.002	0.002	0.005	0.007	0.00903	0.00541	0.00715	0.0044	0.0052	0.00244	0.006	0.001
Mercury	0.0003	0.001	---	< 0.0001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite (as N)	0.3	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N)	2.5	10	0.46	0.82	0.19	0.20	0.21	0.26	0.16	0.26	0.14	0.23	0.16	0.12	0.09	< 0.05	< 0.05	0.20	0.05	0.07	0.06	0.23
pH (units) [3]	6.5 - 8.5	6.5 - 8.5	**6.34**	7.19	7.00	6.91	6.60	6.97	7.22	7.14	7.20	7.09	6.60	6.91	7.29	6.61	7.38	7.56	7.76	8.44	6.58	6.92
Phosphorus, Total	N/L	N/L	---	---	0.05	0.04	< 0.02	< 0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.009	< 0.009	< 0.009	< 0.03	< 0.009
Potassium	N/L	N/L	---	---	1.10	1.29	1.25	1.37	1.12	1.55	1.12	1.53	0.99	1.17	1.07	1.35	1.20	1.43	1.08	1.43	1.17	1.34
Silicon	N/L	N/L	---	---	5.71	4.78	6.20	6.18	5.91	6.71	6.27	7.43	6.20	6.53	6.54	6.31	6.29	6.84	7.11	7.50	6.58	7.24
Sodium	101.5	200	3.48	3.21	1.60	1.70	1.91	1.65	1.57	1.91	1.61	1.73	1.34	1.31	1.33	1.76	1.44	1.62	1.54	1.80	1.38	1.55
Strontium	N/L	N/L	---	---	0.039	0.056	0.040	0.044	0.039	0.059	0.041	0.060	0.034	0.045	0.0375	0.0523	0.0506	0.0560	0.0375	0.0569	0.045	0.053
Sulphate	255	500	2.5	4.7	7.4	5.5	7.9	5.8	7.8	5.4	5.9	4.1	4.3	3.6	5.4	4.6	5.4	5.4	5.6	4.6	5.2	4.3
Total Kjeldahl Nitrogen	N/L	N/L	---	---	< 0.5	< 0.5	< 0.5	< 0.5	< 0.05	0.47	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	288	500	54	77	34	63	60	60	49	60	66	83	97	49	< 30	46	34	63	54	54	60	57
Zinc	2.5	5	---	---	0.01	< 0.01	0.004	0.002	< 0.01	< 0.01	0.006	0.004	0.003	0.002	0.003	0.005	0.002	0.004	0.004	0.008	0.008	0.012

Notes:
1. Reasonable Use Concept (RUC) criteria.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and shaded values exceed the ODWS.
Bold and Italic values exceed RUC limits.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	ODWS [1]	BH1								BH-2S		
		19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	9-Oct-08	6-Oct-09	4-Oct-11	25-Oct-12	12-Oct-06	15-Oct-07	9-Oct-08
Benzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Bromodichloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Bromoform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Bromomethane	N/L	< 0.005	--	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
Carbon tetrachloride	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.005	< 0.005	< 0.001
Chlorobenzene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
Chloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Chloromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
1,2-Dichlorobenzene	0.2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
1,3-Dichlorobenzene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
1,4-Dichlorobenzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
1,1-Dichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
1,2-Dichloroethane	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
1,1-Dichloroethylene	0.014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
1,2-Dichloropropane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
trans-1,2-Dichloroethylene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
cis-1,2-Dichloroethene	N/L	--	--	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	0.0058	< 0.005	< 0.005
cis-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
trans-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
Ethylbenzene	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Ethylenedibromide	N/L	< 0.002	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.005	< 0.005	< 0.001
Dichloromethane	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
Styrene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.004	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.004
1,1,1,2-Tetrachloroethane	N/L	--	--	< 0.005	< 0.005	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.002
1,1,2,2-Tetrachloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.001
Tetrachloroethene	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
Toluene	0.024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
Trichloroethylene	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
Vinyl Chloride	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.0005	< 0.0002	< 0.0002	< 0.002	< 0.002	< 0.001
Trichlorofluoromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,1-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
1,1,2-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.005	< 0.005	< 0.005
Xylene; total	0.3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
o-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
m-p-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.001	< 0.001	< 0.001
2-Chloroethylvinylether	N/L	--	--	< 0.005	< 0.005	--	--	--	-	< 0.005	< 0.005	--

Notes:
1. Ontario Drinking Water Standards (ODWS).

Results expressed in mg/L unless otherwise noted.
Shaded area with bold text indicates ODWS exceedance.
N/L indicates no limit specified.
"--" parameter not analyzed.

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Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	ODWS [1]	BH-2D								
		19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	9-Oct-08	06-Oct-09	13-Oct-10	04-Oct-11	25-Oct-12
Benzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromodichloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromoform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromomethane	N/L	< 0.005	--	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Carbon tetrachloride	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chlorobenzene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	0.001	< 0.0005	< 0.0005
Chloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chloromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichlorobenzene	0.2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,3-Dichlorobenzene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,4-Dichlorobenzene	0.005	0.0012	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloroethane	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethylene	0.014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloropropane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,2-Dichloroethylene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.005	< 0.0005	< 0.0005
cis-1,2-Dichloroethene	N/L	--	--	< 0.005	< 0.005	< 0.005	0.0009	0.0012	0.0012	0.00066
cis-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylenedibromide	N/L	< 0.002	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichloromethane	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 0.002	< 0.0005	< 0.0005
Styrene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.004	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,1,2-Tetrachloroethane	N/L	--	--	< 0.005	< 0.005	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Tetrachloroethene	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Toluene	0.024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Trichloroethylene	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Vinyl Chloride	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.0005	< 0.0005	< 0.0002	< 0.0002
Trichlorofluoromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,1-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Xylene; total	0.3	< 0.001	0.0011	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
o-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
m-p-Xylene	N/L	< 0.001	0.0011	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
2-Chloroethylvinylether	N/L	--	--	< 0.005	< 0.005	--	--	--	--	--

Notes:
1. Ontario Drinking Water Standards (ODWS).

Results expressed in mg/L unless otherwise noted.
Shaded area with bold text indicates ODWS exceedance.
N/L indicates no limit specified.
"--" parameter not analyzed.

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Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	ODWS [1]	BH-5			BH95-9								
		12-Oct-06	15-Oct-07	9-Oct-08	19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	9-Oct-08	6-Oct-09	13-Oct-10	4-Oct-11	25-Oct-12
Benzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromodichloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromoform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromomethane	N/L	< 0.005	< 0.005	< 0.001	< 0.005	--	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Carbon tetrachloride	N/L	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chlorobenzene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chloromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichlorobenzene	0.2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,3-Dichlorobenzene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,4-Dichlorobenzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloroethane	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethylene	0.014	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloropropane	N/L	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,2-Dichloroethylene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
cis-1,2-Dichloroethene	N/L	< 0.005	< 0.005	< 0.005	--	--	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
cis-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylenedibromide	N/L	< 0.005	< 0.005	< 0.001	< 0.002	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichloromethane	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 0.002	< 0.0005	< 0.0005
Styrene	N/L	< 0.005	< 0.005	< 0.004	< 0.005	< 0.005	< 0.005	< 0.005	< 0.004	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,1,2-Tetrachloroethane	N/L	< 0.005	< 0.005	< 0.002	--	--	< 0.005	< 0.005	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	N/L	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Tetrachloroethene	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Toluene	0.024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Trichloroethylene	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Vinyl Chloride	0.002	< 0.002	< 0.002	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.0005	< 0.0005	< 0.0002	< 0.0002
Trichlorofluoromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,1-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Xylene; total	0.3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
o-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
m-p-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
2-Chloroethylvinylether	N/L	< 0.005	< 0.005	--	--	--	< 0.005	< 0.005	--	--	--	--	--

Notes:
1. Ontario Drinking Water Standards (ODWS).

Results expressed in mg/L unless otherwise noted.
Shaded area with bold text indicates ODWS exceedance.
N/L indicates no limit specified.
"--" parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 4
Groundwater Quality
Round Lake Waste Disposal Site

Parameter	ODWS [1]	BH01-14								
		19-Oct-04	25-Oct-05	12-Oct-06	15-Oct-07	9-Oct-08	6-Oct-09	13-Oct-10	4-Oct-11	25-Oct-12
Benzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromodichloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromoform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Bromomethane	N/L	< 0.005	--	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Carbon tetrachloride	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chlorobenzene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chloroform	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chloromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibromochloromethane	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichlorobenzene	0.2	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,3-Dichlorobenzene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,4-Dichlorobenzene	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloroethane	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1-Dichloroethylene	0.014	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,2-Dichloropropane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,2-Dichloroethylene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
cis-1,2-Dichloroethene	N/L	--	--	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
cis-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
trans-1,3-Dichloropropene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	0.0024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylenedibromide	N/L	< 0.002	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichloromethane	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 0.002	< 0.0005	< 0.0005
Styrene	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.004	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,1,2-Tetrachloroethane	N/L	--	--	< 0.005	< 0.005	< 0.002	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2,2-Tetrachloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Tetrachloroethene	0.03	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Toluene	0.024	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Trichloroethylene	0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Vinyl Chloride	0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	< 0.0005	< 0.0005	< 0.0002	< 0.0002
Trichlorofluoromethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,1,1-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
1,1,2-Trichloroethane	N/L	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Xylene; total	0.3	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
o-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
m-p-Xylene	N/L	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005
2-Chloroethylvinylether	N/L	--	--	< 0.005	< 0.005	--	--	--	--	--

Notes:
1. Ontario Drinking Water Standards (ODWS).

Results expressed in mg/L unless otherwise noted.
Shaded area with bold text indicates ODWS exceedance.
N/L indicates no limit specified.
"--" parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 5
75% Reasonable Use Concept Assessment
Round Lake Waste Disposal Site

Parameter	75 % of RUC [1]	ODWS [2]	BH-8																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	-	30 - 500	260	249	250	253	249	227	183	187	199	208	163	184	209	176	196	144	188	162
Aluminum	-	0.1	0.018	< 0.01	0.017	0.021	< 0.01	< 0.01	0.019	0.018	0.029	0.035	0.038	0.041	0.0293	0.0386	0.0629	0.0631	0.0867	0.0673
Ammonia, Total (N)	-	N/L	1.5	1.5	2.5	2.7	2.92	4.17	3.00	3.2	4.4	3.5	3.0	3.6	4.0	3.2	4.2	3.4	4.0	3.4
Arsenic	-	0.025	---	---	---	---	---	---	---	0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.197	1.0	0.168	0.178	0.167	***0.198***	***0.212***	***0.215***	0.175	0.185	0.179	0.185	0.155	0.161	***0.201***	0.173	0.164	0.150	0.181	0.173
Boron	0.942	5.0	0.12	0.13	0.09	0.16	0.11	0.16	0.09	0.09	0.10	0.08	0.09	0.09	0.109	0.146	0.0863	0.0828	0.0926	0.1030
Cadmium	-	0.005	---	---	---	---	---	---	---	0.00002	---	---	---	---	---	---	---	---	---	---
Calcium	-	N/L	61.3	68.6	61.9	58.4	56.4	53.5	44.9	42.2	40.5	43.3	36.6	37.2	44.5	39.6	37.1	34.2	37.1	37.7
Chloride	94.5	250	17.0	20.0	17.0	17.0	13.0	12.0	9.7	9.8	8.0	9.4	5.9	6.4	6.8	6.7	5.2	4.1	5.6	4.4
Chromium	0.0099	0.05	0.005	< 0.02	0.006	0.004	< 0.003	0.002	0.003	0.005	0.003	0.003	0.003	0.004	0.0031	0.0038	0.0027	0.0040	0.0028	0.0030
Chemical Oxygen Demand	-	N/L	38	33	42	36	40	45	20	29	27	30	22	27	29	34	29	27	33	40
Cobalt	-	N/L	0.0055	0.02	0.0052	0.005	< 0.003	< 0.003	0.004	0.004	0.004	0.012	0.015	0.013	0.0109	0.00989	0.00815	0.0112	0.0051	0.0105
Conductivity (µS/cm) [3]	-	N/L	430	339	431	568	423	383	322	347	340	366	291	292	337	324	283	293	305	322
Copper	-	1	< 0.005	< 0.005	< 0.005	< 0.005	0.003	< 0.001	0.002	0.004	0.003	0.002	0.002	0.003	0.0014	0.0021	0.0033	0.0044	0.0041	0.0030
Dissolved Organic Carbon	-	5	**7.4**	**6.5**	**6.4**	**6.7**	**8.4**	**6.2**	4.8	**5.7**	4.6	**10.2**	4.3	3.7	**5.6**	**5.2**	4.8	**5.9**	**5.5**	**5.2**
Hardness	-	100	**229**	**246**	**230**	**211**	**203**	**190**	**161**	**152**	**144**	**153**	**129**	**131**	**156**	**136**	**130**	**120**	**129**	**131**
Iron	-	0.3	**31.3**	**28.7**	**29.5**	**27.3**	**28.60**	**26.90**	**23.50**	**22.5**	**21.6**	**24.1**	**20.6**	**22.1**	**26.6**	**23.1**	**23.2**	**21.3**	**23.5**	**24.7**
Lead	-	0.01	---	---	---	---	---	---	---	0.0001	---	---	---	---	---	---	---	---	---	---
Magnesium	-	N/L	18.4	18	18.4	15.9	15.2	13.7	11.8	11.2	10.5	11.0	9.2	9.3	10.9	9.11	8.98	8.39	8.82	9.06
Manganese	-	0.05	**6.48**	**6.74**	**7.04**	**7.46**	**7.40**	**6.85**	**4.87**	**4.96**	**5.10**	**5.23**	**4.46**	**4.47**	**5.60**	**4.98**	**4.12**	**3.51**	**4.36**	**4.51**
Mercury	-	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite	-	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.06	0.11	0.06	0.14	< 0.05
pH (units) [3]	-	6.5 - 8.5	7.20	**6.48**	7.10	6.55	**6.34**	**6.38**	6.54	6.52	**6.45**	6.57	6.80	6.76	6.60	6.65	**6.42**	7.08	**6.49**	**6.37**
Phosphorus, Total	-	N/L	0.1	0.31	< 0.02	< 0.02	< 0.01	0.02	< 0.01	< 0.01	0.02	0.01	< 0.01	< 0.01	0.02	0.025	< 0.009	< 0.009	0.12	0.013
Potassium	-	N/L	13	12.5	15.3	16.9	17.7	19.6	17.1	19.5	17.7	19.1	16.2	17.1	19.1	15.8	15.4	16.6	17.1	17.3
Silicon	-	N/L	14.9	13.5	16	16.2	15.0	15.9	14.8	17.2	14.8	16.5	14.6	14.6	15.9	17.4	16.5	17.6	16.2	18.0
Sodium	-	200	12.6	10.7	14.5	13	13.5	13.90	12.50	13.3	12.5	12.6	11.2	12.3	13.4	12.6	11.5	11.1	10.1	11.3
Strontium	-	N/L	0.425	0.42	0.387	0.449	0.416	0.388	0.331	0.319	0.299	0.325	0.272	0.278	0.328	0.294	0.273	0.259	0.278	0.292
Sulphate	-	500	7.3	5.9	8.3	5.1	8.6	7.0	14.0	9.9	11.0	9.8	13.0	13.0	8.1	8.2	8.3	10.0	8.9	8.1
Total Kjeldahl Nitrogen	-	N/L	2	1.9	3	2.6	3.03	6.4	3	3.3	4.8	3.6	3.2	3.4	4.2	3.4	4.8	3.7	3.8	3.4
Total Dissolved Solids	-	500	303	334	354	323	351	323	269	286	271	266	186	251	257	260	257	231	260	231
Zinc	-	5	0.004	< 0.01	0.005	0.011	0.03	< 0.01	0.012	0.017	0.014	0.003	0.003	0.005	0.002	0.007	0.003	0.005	0.003	0.002

Notes:
1. Reasonable Use Concept (RUC) criteria, in accordance with Provisional Certificate of Approval A412303.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and Italic values exceed RUC limits.
Bold and shaded values exceed the ODWS.
N/L indicates no limit specified.
"---" means parameter not analyzed.

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Table 5
75% Reasonable Use Concept Assessment
Round Lake Waste Disposal Site

Parameter	75 % of RUC [1]	ODWS [2]	BH95-9																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	09-Oct-08	6-May-09	06-Oct-09	10-May-10	13-Oct-10	24-May-11	04-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	-	30 - 500	89	100	90	118	83	103	89	101	83	89	65	98	72	76	67	74	35	82
Aluminum	-	0.1	0.005	< 0.01	< 0.004	< 0.004	< 0.01	< 0.01	0.003	0.003	**0.213**	0.009	0.036	0.025	0.0137	0.0131	0.0318	0.0342	0.0515	0.0106
Ammonia, Total (N)	-	N/L	< 0.1	< 0.1	0.2	0.2	0.08	0.21	0.10	< 0.1	0.3	0.1	< 0.1	0.1	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Arsenic	-	0.025	---	---	---	---	---	---	---	0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.197	1.0	0.041	0.048	0.038	0.056	0.043	0.054	0.041	0.047	0.043	0.043	0.030	0.041	0.0327	0.0343	0.0312	0.0391	0.0280	0.0360
Boron	0.942	5.0	0.07	0.08	0.06	0.07	0.045	0.078	0.063	0.068	0.066	0.055	0.048	0.052	0.0447	0.044	0.0374	0.0524	0.0303	0.0724
Cadmium	-	0.005	---	---	---	---	---	---	---	0.00003	---	---	---	---	---	---	---	---	---	---
Calcium	-	N/L	24	25.1	23.2	28.7	23.1	28.1	24.8	26.6	42.2	23.9	17.4	24.0	19.0	19.7	18.9	21.6	15.0	21.6
Chloride	94.5	250	5.7	7.0	7.8	11.0	10.0	9.4	13.0	11.0	12.0	9.6	6.8	5.6	5.0	5.4	6.0	5.6	4.1	5.1
Chromium	0.0099	0.05	0.002	< 0.02	0.002	< 0.001	< 0.003	< 0.001	< 0.0003	0.001	0.001	0.001	< 0.0005	0.0007	0.0009	0.0008	0.0006	0.0013	< 0.0005	< 0.0005
Chemical Oxygen Demand	-	N/L	< 8	< 8	10	< 8	8	< 8	< 8	< 8	12	< 8	< 8	< 8	11	10	10	< 8	9	10
Cobalt	-	N/L	0.0014	< 0.01	0.0011	0.0015	< 0.003	< 0.003	0.0010	0.0011	0.0009	0.0103	0.0184	0.0099	0.00736	0.0043	0.0053	0.0089	0.0073	0.0082
Conductivity (µS/cm) [3]	-	N/L	175	150	178	311	202	204	183	204	181	188	132	169	136	152	131	146	115	162
Copper	-	1	< 0.005	< 0.005	< 0.005	< 0.005	0.003	< 0.001	0.001	0.004	0.002	0.001	0.0013	0.0009	0.0008	0.0005	0.0011	0.0010	0.0010	0.0013
Dissolved Organic Carbon	-	5	1.5	1.5	1.8	2	3.5	2.2	2.0	1.9	1.4	1.0	1.7	1.7	2.3	2.6	2.6	2.3	2.2	2.1
Hardness	-	100	**109**	**109**	**108**	**131**	**104**	**126**	**112**	**120**	**153**	**109**	78.1	**108**	85.2	87.4	83.9	97.3	67.6	96.2
Iron	-	0.3	***10.5***	***9.59***	***9.98***	***11.9***	***9.77***	***10.90***	***8.34***	***7.78***	***6.84***	***6.87***	***5.68***	***7.38***	***5.70***	***5.76***	***6.38***	***6.41***	***5.26***	***1.31***
Lead	-	0.01	---	---	---	---	---	---	---	0.00005	---	---	---		---	---	---	---	---	---
Magnesium	-	N/L	11.9	11.3	12.3	14.4	11.2	13.7	12.2	13.1	11.6	11.9	8.4	11.7	9.15	9.26	8.93	10.6	7.4	10.2
Manganese	-	0.05	***0.28***	***0.28***	***0.29***	***0.34***	***0.28***	***0.31***	***0.21***	***0.202***	***0.185***	***0.232***	***0.193***	***0.225***	***0.199***	***0.175***	***0.175***	***0.172***	***0.171***	***0.182***
Mercury	-	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite	-	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05	0.05	< 0.05	< 0.05	0.07	< 0.05	< 0.05	0.19
pH (units) [3]	-	6.5 - 8.5	6.90	***6.49***	6.90	6.50	6.69	6.82	7.11	6.71	6.58	6.61	6.74	6.53	6.60	6.51	6.52	***6.21***	***6.47***	6.72
Phosphorus, Total	-	N/L	0.08	0.29	< 0.02	< 0.02	< 0.01	0.01	< 0.01	< 0.01	0.07	0.01	< 0.01	< 0.01	0.01	0.011	0.014	< 0.009	0.37	0.01
Potassium	-	N/L	2.47	2.46	2.26	3.42	2.93	3.25	2.83	3.03	2.82	2.53	2.10	2.53	2.30	2.41	2.12	2.59	2.18	3.84
Silicon	-	N/L	8.12	6.93	9.37	9.57	9.28	9.36	8.61	9.55	8.90	9.15	8.92	8.55	9.63	10.40	10.30	10.50	10.10	8.24
Sodium	-	200	6.13	8.42	6.96	9.82	7.77	9.10	8.39	8.99	7.10	5.94	4.29	6.01	5.03	5.23	4.66	5.91	3.84	7.58
Strontium	-	N/L	0.129	0.133	0.113	0.157	0.123	0.150	0.136	0.142	0.137	0.132	0.095	0.128	0.0991	0.105	0.101	0.120	0.083	0.119
Sulphate	-	500	16	18	17	21	16	19	15	20	19	16	12	16	15	16	12	11	11	17
Total Kjeldahl Nitrogen	-	N/L	< 0.5	< 0.5	< 0.5	0.7	0.15	0.58	< 0.5	< 0.5	2.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	-	500	114	166	**626**	177	169	180	154	206	154	149	83	137	123	151	134	146	100	143
Zinc	-	5	0.008	< 0.01	0.003	0.008	< 0.01	< 0.01	0.012	0.018	0.014	0.003	0.004	0.004	0.002	0.003	0.005	0.006	0.002	< 0.002

Notes:
1. Reasonable Use Concept (RUC) criteria, in accordance with Provisional Certificate of Approval A412303.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and Italic values exceed RUC limits.
Bold and shaded values exceed the ODWS.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

Table 5
75% Reasonable Use Concept Assessment
Round Lake Waste Disposal Site

Parameter	75 % of RUC [1]	ODWS [2]	BH01-13D																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	-	30 - 500	140	150	128	126	127	118	132	107	118	101	118	109	97	91	91	87	84	81
Aluminum	-	0.1	0.012	< 0.01	0.008	0.014	< 0.01	0.020	0.010	0.011	0.017	0.028	0.060	0.040	0.0977	0.0538	0.0874	0.0502	**0.1020**	0.0706
Ammonia, Total (N)	-	N/L	0.2	0.3	0.3	0.2	0.24	0.72	0.20	0.3	0.6	0.3	0.4	0.1	0.5	0.3	0.4	0.4	0.3	0.3
Arsenic	-	0.025	---	---	---	---	---	---	---	0.0006	---	---	---	---	---	---	---	---	---	---
Barium	0.197	1.0	0.07	0.086	0.067	0.064	0.067	0.066	0.067	0.062	0.064	0.059	0.073	0.063	0.0645	0.0646	0.0641	0.0664	0.0644	0.0598
Boron	0.942	5.0	0.07	0.08	0.07	0.08	0.058	0.071	0.064	0.052	0.060	0.045	0.056	0.048	0.0527	0.060	0.047	0.045	0.047	0.047
Cadmium	-	0.005	---	---	---	---	---	---	---	0.00002	---	---	---	---	---	---	---	---	---	---
Calcium	-	N/L	33.9	41.5	35.7	33.3	34.7	32.8	34.3	28.0	28.1	24.4	29.4	26.8	25.4	23.1	23.6	23.8	22.0	23.0
Chloride	94.5	250	8.4	13.0	11.0	11.0	10.0	9.1	8.2	6.5	6.1	6.7	5.8	4.9	4.8	5.1	3.6	3.5	3.6	4.3
Chromium	0.0099	0.05	0.002	< 0.02	0.003	0.001	< 0.003	< 0.001	0.0006	0.002	0.001	0.001	0.001	0.002	0.0016	0.0014	0.0010	0.0017	0.0010	0.0008
Chemical Oxygen Demand	-	N/L	24	17	11	20	19	16	12	17	20	12	20	12	22	19	18	15	11	27
Cobalt	-	N/L	0.0035	< 0.01	0.0034	0.003	< 0.003	< 0.003	0.003	0.003	0.003	0.008	0.018	0.013	0.0094	0.00711	0.00759	0.00976	0.00276	0.00621
Conductivity (µS/cm) [3]	-	N/L	240	221	243	316	264	212	208	196	175	188	191	186	160	174	157	170	115	181
Copper	-	1	< 0.005	< 0.005	< 0.005	< 0.005	0.002	< 0.001	0.002	0.004	0.002	0.001	0.003	0.002	0.005	0.0026	0.0044	0.0025	0.0025	0.0029
Dissolved Organic Carbon	-	5	3.4	3	3	2.7	4.7	3.2	3.7	3.8	3.0	2.0	2.4	2.6	4.1	**9.4**	2.5	4.4	3.6	3.3
Hardness	-	100	**148**	**170**	**157**	**142**	**145**	**138**	**143**	**119**	**117**	**102**	**119**	**111**	**104**	93	96.7	98.1	88.5	94.8
Iron	-	0.3	**13.7**	**14.6**	**13.2**	**10.1**	**10.10**	**8.04**	**9.93**	**7.83**	**8.28**	**7.15**	**10.00**	**8.61**	**8.37**	**8.00**	**7.54**	**7.47**	**7.54**	**6.28**
Lead	-	0.01	---	---	---	---	---	---	---	0.0001	---	---	---	---	---	---	---	---	---	---
Magnesium	-	N/L	15.3	16.2	16.4	14.4	14.3	13.7	13.9	11.9	11.4	10.1	11.0	10.6	9.87	8.56	9.16	9.39	8.19	9.11
Manganese	-	0.05	**1.18**	**1.35**	**1.42**	**1.24**	**1.42**	**1.31**	**1.26**	**1.01**	**1.26**	**1.01**	**1.52**	**1.24**	**1.32**	**1.37**	**1.30**	**1.18**	**1.28**	**1.15**
Mercury	-	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite	-	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.16	< 0.05	0.05	< 0.05	< 0.05	< 0.05	0.50	< 0.05	< 0.05	< 0.05	< 0.05
pH (units) [3]	-	6.5 - 8.5	6.80	**6.48**	7.00	**6.49**	**6.34**	6.55	6.51	6.55	6.51	6.92	6.72	**6.45**	6.71	6.71	**6.27**	7.39	**6.47**	**6.36**
Phosphorus, Total	-	N/L	2.64	0.84	< 0.02	< 0.02	< 0.01	0.03	0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.02	0.01	< 0.009	< 0.009	0.99	0.009
Potassium	-	N/L	2.53	2.67	2.52	3.55	3.72	3.77	3.91	3.97	4.22	3.79	4.23	4.20	4.38	4.37	4.15	4.78	4.80	4.78
Silicon	-	N/L	9.83	8.89	11.4	11.1	10.4	10.6	10.3	11.7	10.9	11.2	11.1	10.7	11.5	11.8	11.5	12.2	11.5	11.8
Sodium	-	200	7.85	8.61	8.34	9.07	8.94	9.23	9.69	8.67	8.58	6.75	7.05	7.03	6.69	6.67	6.15	6.06	5.42	5.37
Strontium	-	N/L	0.171	0.194	0.167	0.173	0.181	0.178	0.190	0.159	0.160	0.144	0.173	0.159	0.151	0.142	0.146	0.149	0.138	0.150
Sulphate	-	500	17	19	22	19	16	24	16	18	17	15	14	20	14	18	17	15	13	16
Total Kjeldahl Nitrogen	-	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.40	0.68	< 0.5	< 0.5	2.1	< 0.5	< 0.5	< 0.5	1	< 0.5	0.6	0.5	0.5	< 0.5
Total Dissolved Solids	-	500	189	214	214	206	220	211	189	200	191	151	191	157	163	160	177	154	129	157
Zinc	-	5	0.006	< 0.01	0.003	0.007	< 0.01	< 0.01	0.016	0.018	0.013	0.003	0.003	0.005	0.003	0.002	0.002	0.004	0.004	< 0.002

Notes:
1. Reasonable Use Concept (RUC) criteria, in accordance with Provisional Certificate of Approval A412303.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and Italic values exceed RUC limits.
Bold and shaded values exceed the ODWS.
N/L indicates no limit specified.
"---" means parameter not analyzed.

Greenview
ENVIRONMENTAL MANAGEMENT

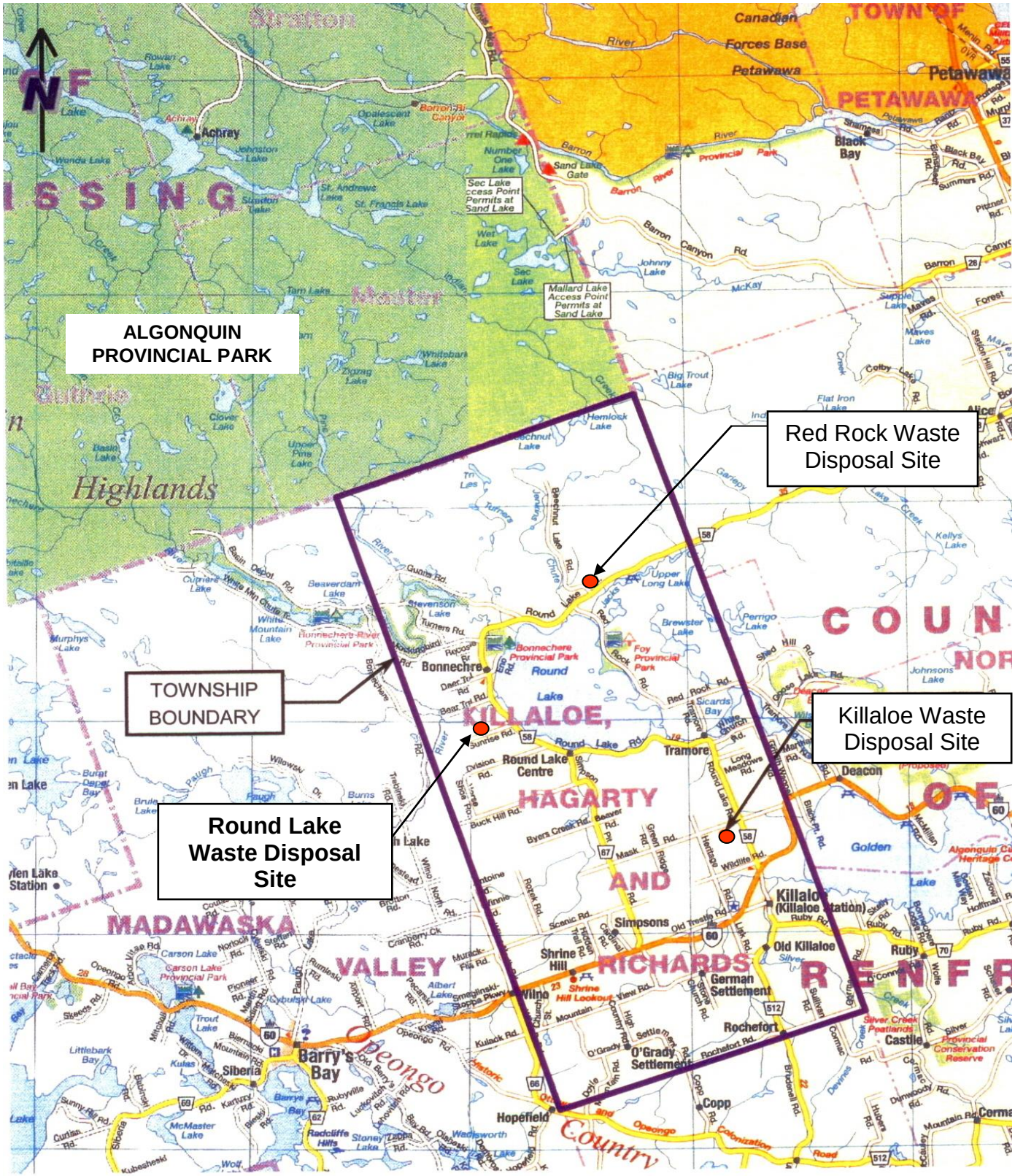
Table 5
75% Reasonable Use Concept Assessment
Round Lake Waste Disposal Site

Parameter	75 % of RUC [1]	ODWS [2]	BH01-14																	
			12-May-04	19-Oct-04	11-May-05	25-Oct-05	8-May-06	12-Oct-06	30-Apr-07	15-Oct-07	20-May-08	9-Oct-08	6-May-09	6-Oct-09	10-May-10	13-Oct-10	24-May-11	4-Oct-11	26-Apr-12	25-Oct-12
Alkalinity (as $CaCO_3$)	-	30 - 500	103	115	92	90	84	79	91	83	92	83	77	86	70	72	63	63	50	69
Aluminum	-	0.1	0.019	0.01	0.008	0.016	< 0.01	0.020	0.009	0.015	0.033	**0.118**	**0.103**	**0.240**	**0.186**	**0.167**	**0.342**	**0.109**	**0.263**	**0.285**
Ammonia, Total (N)	-	N/L	< 0.1	0.2	0.1	< 0.1	0.10	0.26	0.10	0.2	0.2	< 0.1	0.2	< 0.1	0.2	< 0.1	0.3	0.1	0.3	0.2
Arsenic	-	0.025	---	---	---	---	---	---	---	< 0.0002	---	---	---	---	---	---	---	---	---	---
Barium	0.197	1.0	0.044	0.055	0.047	0.048	0.050	0.052	0.054	0.050	0.053	0.047	0.048	0.053	0.0534	0.0476	0.0484	0.0447	0.0492	0.0535
Boron	0.942	5.0	< 0.05	0.05	0.04	0.05	0.046	0.054	0.046	0.042	0.044	0.035	0.035	0.034	0.0377	0.044	0.0299	0.0323	0.0313	0.0397
Cadmium	-	0.005	---	---	---	---	---	---	---	0.00001	---	---	---	---	---	---	---	---	-	---
Calcium	-	N/L	24.6	32.5	27.8	23.9	24.3	23.7	25.9	21.9	23.2	18.7	19.5	20.7	20.6	17.9	16.2	17.7	16.8	19
Chloride	94.5	250	3.8	8.4	7.2	5.9	6.8	6.5	7.1	5.7	5.1	5.4	5.1	4.8	4.4	3.9	3.1	3	3.3	3.3
Chromium	0.0099	0.05	0.001	< 0.02	0.002	< 0.001	< 0.003	< 0.001	< 0.0003	0.001	< 0.0005	0.001	0.001	0.001	0.0011	0.0012	0.0015	0.0014	0.001	0.0012
Chemical Oxygen Demand	-	N/L	< 8	11	< 8	< 8	20	< 8	9	16	11	20	11	38	14	13	< 8	< 8	9	17
Cobalt	-	N/L	0.0009	< 0.01	0.001	0.0009	< 0.003	< 0.003	0.001	0.001	0.001	0.014	0.015	0.008	0.00578	0.00781	0.00675	0.00706	0.00664	0.00889
Conductivity (µS/cm) [3]	-	N/L	200	175	190	250	196	169	181	169	171	155	146	153	144	136	123	141	132	149
Copper	-	1	< 0.005	< 0.005	< 0.005	< 0.005	0.001	< 0.001	0.001	0.0037	0.0023	0.0029	0.0028	0.0050	0.0038	0.0047	0.0074	0.0027	0.0035	0.0061
Dissolved Organic Carbon	-	5	1.8	2.8	1.5	2.3	4.2	1.7	2.3	2.3	2.5	1.4	1.5	1.9	3.2	**10.6**	2.4	3.7	3.1	2.3
Hardness	-	100	**106**	**135**	**125**	**105**	**107**	**106**	**116**	**101**	**105**	85.8	88.1	93.6	92.8	78.7	72	78.6	73.4	82.5
Iron	-	0.3	**6.12**	**6.32**	**7.19**	**6.31**	**7.24**	**8.14**	**9.73**	**8.73**	**9.37**	**7.92**	**8.00**	**8.80**	**8.07**	**6.56**	**6.78**	**6.35**	**6.57**	**6.87**
Lead	-	0.01	---	---	---	---	---	---	---	0.00005	---	---	---	---	---	---	---	---	---	---
Magnesium	-	N/L	10.8	13.1	13.5	11.1	11.1	11.3	12.5	11.3	11.5	9.5	9.6	10.2	10.0	8.29	7.69	8.36	7.63	8.49
Manganese	-	0.05	**0.26**	**0.29**	**0.36**	**0.29**	**0.32**	**0.32**	**0.29**	**0.26**	**0.28**	**0.27**	**0.28**	**0.29**	**0.285**	**0.32**	**0.25**	**0.256**	0.326	0.475
Mercury	-	0.001	---	---	---	---	---	---	---	< 0.0001	---	---	---	---	---	---	---	---	---	---
Nitrite	-	1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05	1.6	< 0.05	< 0.05	0.05	0.27	< 0.05
pH (units) [3]	-	6.5 - 8.5	7.30	**6.45**	6.80	6.54	**6.28**	**6.41**	**6.44**	6.58	**6.46**	6.52	6.63	**6.40**	6.61	**6.45**	**6.39**	**6.09**	6.51	6.48
Phosphorus, Total	-	N/L	4.78	4.3	0.02	< 0.02	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.03	0.012	0.016	< 0.009	1.74	0.013
Potassium	-	N/L	2.34	2.31	2.36	3.01	3.21	3.07	3.21	3.15	3.27	2.54	2.77	2.88	3.05	2.88	2.6	2.92	3.17	3.62
Silicon	-	N/L	8.64	7.27	9.34	10	8.72	9.04	8.86	9.61	9.09	9.22	9.38	9.17	10.10	10.50	10.5	10.6	10.8	11.9
Sodium	-	200	4.43	6.71	5.32	7.86	5.95	6.26	6.46	6.21	5.79	4.00	3.89	4.48	4.18	4.28	3.63	4	3.55	4.35
Strontium	-	N/L	0.124	0.146	0.131	0.123	0.129	0.134	0.146	0.130	0.131	0.115	0.115	0.121	0.114	0.100	0.0928	0.101	0.0955	0.112
Sulphate	-	500	18	20	27	20	19	25	22	21	22	15	16	18	18	15	14	17	15	15
Total Kjeldahl Nitrogen	-	N/L	< 0.5	< 0.5	< 0.5	< 0.5	0.22	0.43	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	1.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Dissolved Solids	-	500	180	183	200	203	200	189	169	186	151	154	126	143	154	146	143	137	138	143
Zinc	-	5	0.018	< 0.01	0.006	0.005	< 0.01	< 0.01	0.014	0.016	0.013	0.005	0.004	0.004	0.003	0.004	0.005	0.006	< 0.002	0.004

Notes:
1. Reasonable Use Concept (RUC) criteria, in accordance with Provisional Certificate of Approval A412303.
2. Ontario Drinking Water Standards (ODWS).
3. Results obtained from field analysis, as of May 11, 2005.

All results expressed in mg/L unless otherwise noted.
Bold and Italic values exceed RUC limits.
Bold and shaded values exceed the ODWS.
N/L indicates no limit specified.
"---" means parameter not analyzed.

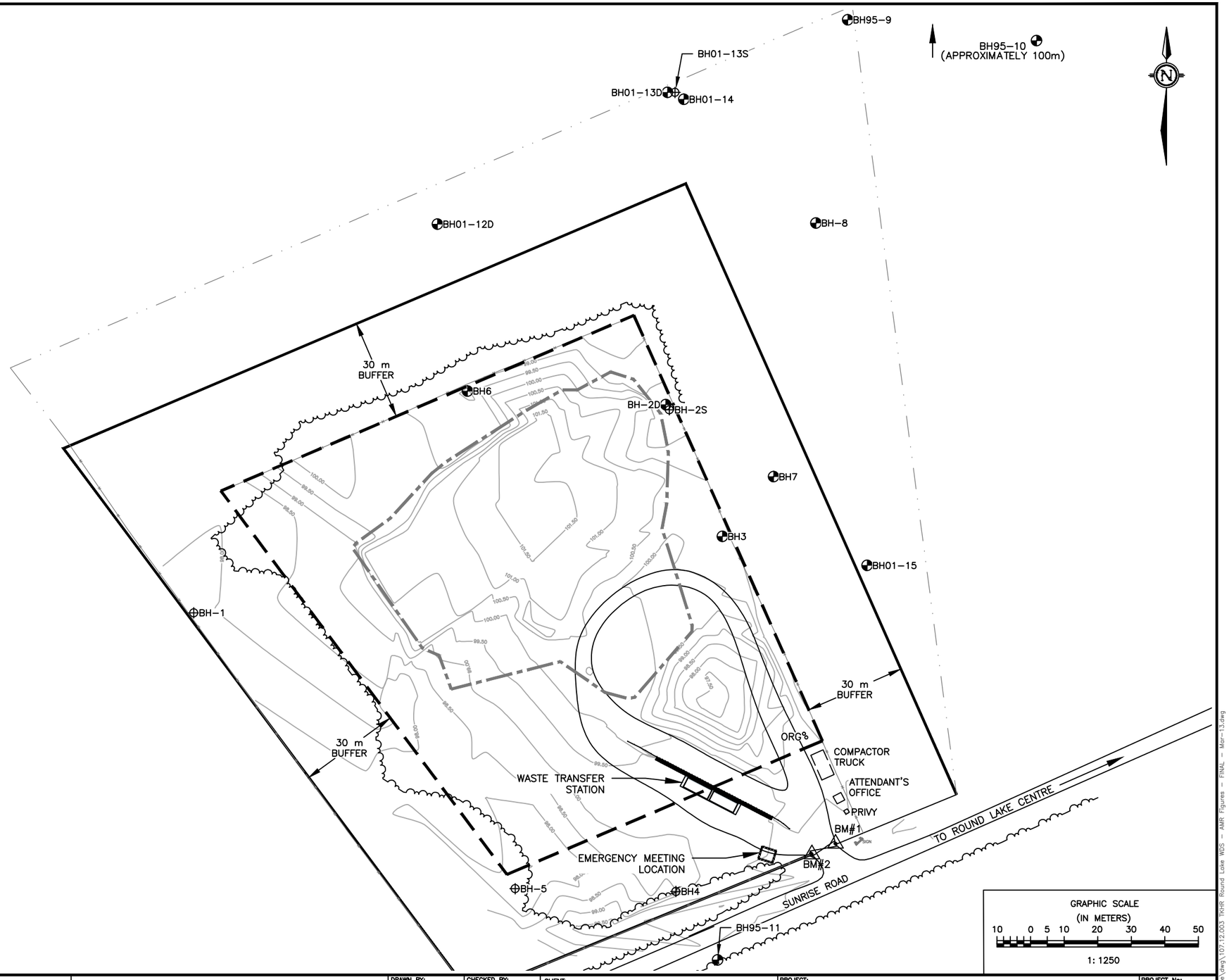
FIGURES



Greenview ENVIRONMENTAL MANAGEMENT **Greenview Environmental Management Limited** 13 Commerce Court, PO Box 100 Bancroft, Ontario K0L 1C0 tel: 613-332-0057 fax: 866-905-8873 web : www.greenview-environmental.ca	CREATED BY: EMJ CHECKED BY: DMH	CLIENT: TOWNSHIP OF KILLALOE, HAGARTY AND RICHARDS	PROJECT NO.: 107.12.003
	DATE: MARCH 2013 SCALE: NTS	SITE/TITLE: REGIONAL LOCATION PLAN	FIGURE: **1**

LEGEND

- PROPERTY BOUNDARY
- APPROVED WASTE DISPOSAL AREA
- EXISTING LIMIT OF WASTE
- CONTAMINANT ATTENUATION ZONE
- 101.5 TOPOGRAPHIC CONTOUR LINE
- ON-SITE ROAD
- FENCELINE
- APPROXIMATE TREE LINE
- BH-1 SHALLOW GROUNDWATER MONITORING WELL
- BH95-11 DEEP GROUNDWATER MONITORING WELL
- BM#2 BENCHMARK



NOTES

1. BENCHMARKS
   BM#1
   NAIL ON WEST GATE POST
   ELEVATION = 100.000m
2. BASE SURVEY DATA PROVIDED BY SGS LAKEFIELD RESEARCH LIMITED AND Jp2g CONSULTANTS INC.
3. UPDATED TOPOGRAPHIC SURVEY COMPLETED BY GREENVIEW ON OCTOBER 24, 2008, NOVEMBER 15, 2011, AND OCTOBER 25, 2012.

No.	DATE	BY	REVISIONS

Greenview
ENVIRONMENTAL MANAGEMENT
Greenview Environmental Management Limited
13 Commerce Court, PO Box 100
Bancroft, ON K0L 1C0
tel: 613-332-0057
fax: 866-908-8873
web: www.greenview-environmental.ca

DRAWN BY:	CHECKED BY:
SRT	DMH
DESIGNED BY:	**APPROVED BY:**
	DMH
SCALE:	**DATE:**
1:1250	MARCH 2013

CLIENT: TOWNSHIP OF KILLALOE, HAGARTY, AND RICHARDS

PROJECT: ROUND LAKE WASTE DISPOSAL SITE

PROJECT No: 107.12.003

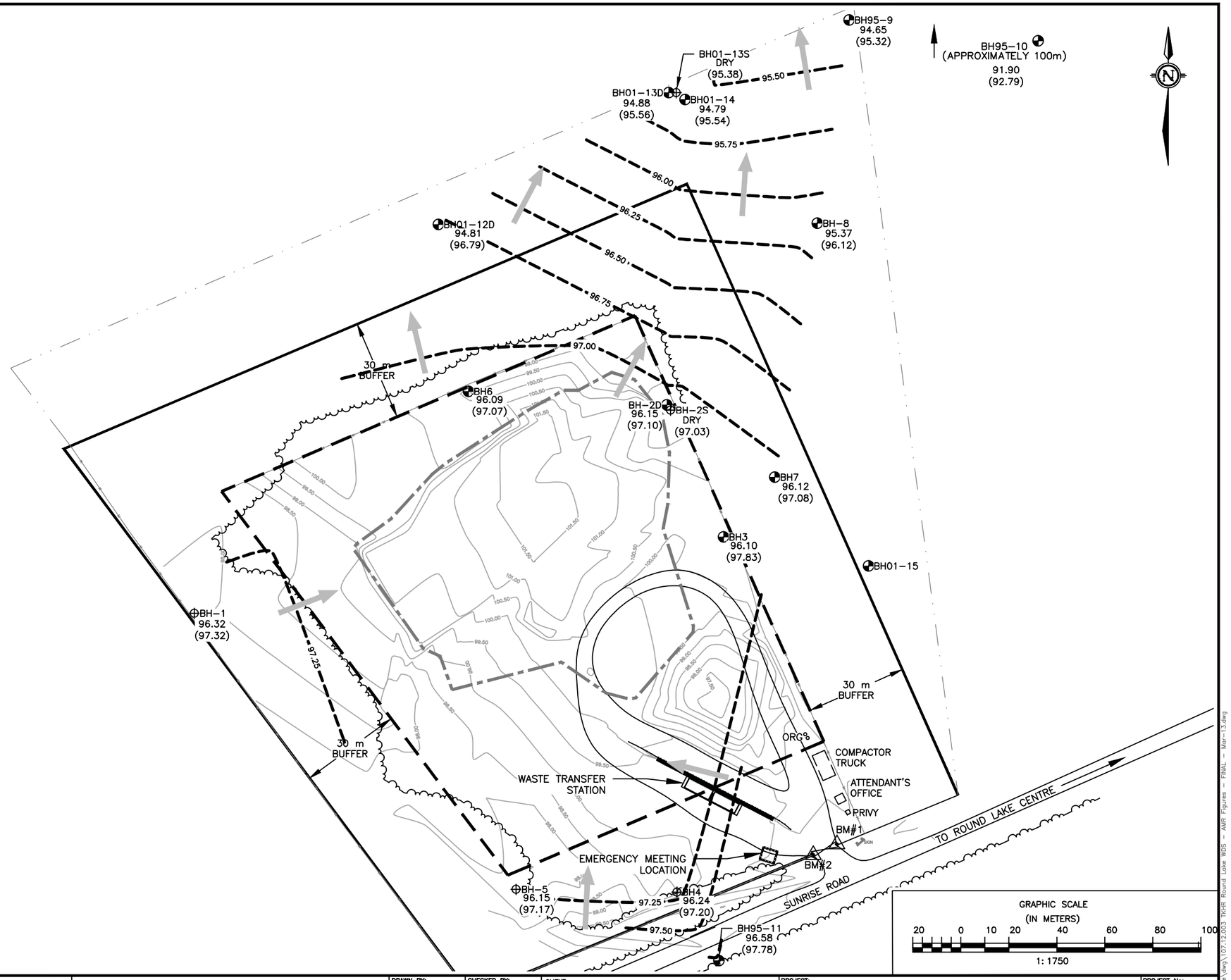
FIGURE: EXISTING SITE CONDITIONS PLAN

FIGURE: 2

G:\AutoCAD\107 KHR\003 Round Lake\dwg\107.12.003 TKHR Round Lake WDS - AMR Figures - FINAL - Mar-13.dwg

LEGEND

- PROPERTY BOUNDARY
- APPROVED WASTE DISPOSAL AREA
- EXISTING LIMIT OF WASTE
- CONTAMINANT ATTENUATION ZONE
- 101.5 TOPOGRAPHIC CONTOUR LINE
- ON-SITE ROAD
- FENCELINE
- APPROXIMATE TREE LINE
- BH-1 SHALLOW GROUNDWATER MONITORING WELL
- BH95-11 DEEP GROUNDWATER MONITORING WELL
- 96.25 EQUIPOTENTIAL CONTOUR (APRIL 26, 2012)
- 96.32 (97.32) GROUNDWATER ELEVATIONS OCTOBER 25, 2012 (APRIL 26, 2012)
- GROUNDWATER FLOW DIRECTION
- BM#2 BENCHMARK



NOTES

1. BENCHMARKS
   BM#1
   NAIL ON WEST GATE POST
   ELEVATION = 100.000m
2. BASE SURVEY DATA PROVIDED BY SGS LAKEFIELD RESEARCH LIMITED AND Jp2g CONSULTANTS INC.
3. UPDATED TOPOGRAPHIC SURVEY COMPLETED BY GREENVIEW ON OCTOBER 24, 2008, NOVEMBER 15, 2011, AND OCTOBER 25, 2012.

No.	DATE	BY	REVISIONS

Greenview
ENVIRONMENTAL MANAGEMENT

Greenview Environmental Management Limited
13 Commerce Court, PO Box 100
Bancroft, ON K0L 1C0
tel: 613-332-0057
fax: 866-908-8873
web: www.greenview-environmental.ca

DRAWN BY:	CHECKED BY:
SRT	DMH
DESIGNED BY:	**APPROVED BY:**
	DMH
SCALE:	**DATE:**
1:1250	MARCH 2013

CLIENT:
TOWNSHIP OF KILLALOE, HAGARTY, AND RICHARDS

PROJECT:
ROUND LAKE WASTE DISPOSAL SITE

FIGURE:
ENVIRONMENTAL MONITORING LOCATION PLAN – SPRING

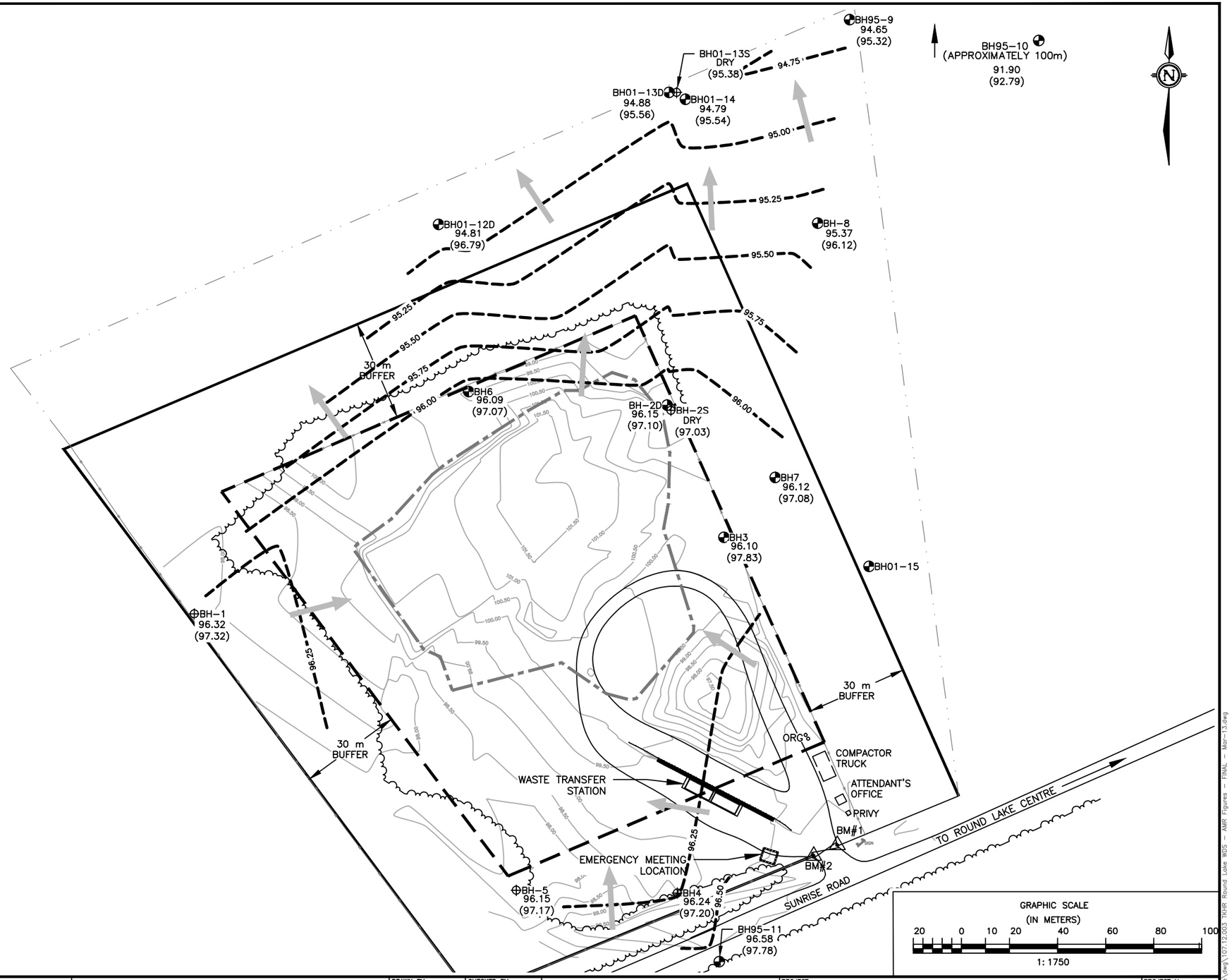
PROJECT No: 107.12.003

FIGURE: 3

G:\AutoCAD\107 KHR\003 Round Lake\dwg\107.12.003 TKHR Round Lake WDS - AMR Figures - FINAL - Mar-13.dwg

LEGEND

- PROPERTY BOUNDARY
- APPROVED WASTE DISPOSAL AREA
- EXISTING LIMIT OF WASTE
- CONTAMINANT ATTENUATION ZONE
- 101.5 TOPOGRAPHIC CONTOUR LINE
- ON-SITE ROAD
- FENCELINE
- APPROXIMATE TREE LINE
- BH-1 SHALLOW GROUNDWATER MONITORING WELL
- BH95-11 DEEP GROUNDWATER MONITORING WELL
- 96.25 EQUIPOTENTIAL CONTOUR (OCTOBER 25, 2012)
- 96.32 (97.32) GROUNDWATER ELEVATIONS OCTOBER 25, 2012 (APRIL 26, 2012)
- GROUNDWATER FLOW DIRECTION
- BM#2 BENCHMARK



NOTES

1. BENCHMARKS
   BM#1
   NAIL ON WEST GATE POST
   ELEVATION = 100.000m
2. BASE SURVEY DATA PROVIDED BY SGS LAKEFIELD RESEARCH LIMITED AND Jp2g CONSULTANTS INC.
3. UPDATED TOPOGRAPHIC SURVEY COMPLETED BY GREENVIEW ON OCTOBER 24, 2008, NOVEMBER 15, 2011, AND OCTOBER 25, 2012.

No.	DATE	BY	REVISIONS

Greenview ENVIRONMENTAL MANAGEMENT

Greenview Environmental Management Limited
13 Commerce Court, PO Box 100
Bancroft, ON K0L 1C0
tel: 613-332-0057
fax: 866-908-8873
web: www.greenview-environmental.ca

DRAWN BY:	CHECKED BY:
SRT	DMH
DESIGNED BY:	**APPROVED BY:**
	DMH
SCALE:	**DATE:**
1:1250	MARCH 2013

CLIENT: TOWNSHIP OF KILLALOE, HAGARTY, AND RICHARDS

PROJECT: ROUND LAKE WASTE DISPOSAL SITE

FIGURE: ENVIRONMENTAL MONITORING LOCATION PLAN – FALL

PROJECT No: 107.12.003

FIGURE: 4

G:\AutoCAD\107 KHR\003 Round Lake\dwg\107.12.003 TKHR Round Lake WDS – AMR Figures – FINAL – Mar-13.dwg

APPENDIX A

Provisional Certificate of Approval A412303

RECEIVED
SEP 14 2009
10709.003
Greenview

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412303
Notice No. 4
Issue Date: September 4, 2009

The Corporation of the Township of Killaloe, Hagarty and Richards
1 John St
Post Office Box, No. 39
Killaloe, Ontario
K0J 2A0

Site Location: Round Lake Landfill
Lot 27, Concession 3
Killaloe, Hagarty and Richards Township, County of Renfrew

You are hereby notified that I have amended Provisional Certificate of Approval No. A412303 issued on May 18, 2000 and amended through notices dated November 6, 2000, November 7, 2000 and April 2003 for Waste Disposal Site (landfill / transfer) , as follows:

I The following Definition is hereby added:

(a) ***"organic waste"*** means source separated residential and/or commercial non-hazardous organic waste consisting of one or more of the following components: food waste, soiled paper products, leaf and yard waste, sanitary products, pet waste.

II The following Conditions are hereby added as follows for Organic Waste Depot Program :

32 The organic waste depot program at the Site shall consist of the on-Site collection and transfer of organic waste that is stored in a maximum of two (2) specialized MOLOK containers with a total storage capacity of 1.6 cubic metres in accordance with the specifications and location of Item 14 in Schedule "A".

33. (a) The Owner shall ensure that containers used to store organic waste are leakproof, lockable and bear resistant;

(b) The Owner shall monitor the containers in which organic waste is stored for:

(i) decomposition to ensure that the organic waste has not decomposed to the point where it is unacceptable for the intended receiving facility; and

(ii) odours;

and

(c) The Owner shall empty the containers used to store organic waste and transfer the organic waste from the Site forthwith when:

(i) the maximum capacity approved in Condition 32 has been reached; or

(ii) the organic waste has decomposed to the point where it is unacceptable to the original intended receiving facility; or

(iii) the organic waste is creating odours that are causing off-Site impacts and/or negative impact to Site users.

III The following items are hereby added to Schedule "A":

(14) Application for a Provisional Certificate of Approval for a Waste Disposal Site dated May 06, 2009 and signed by Ms. Lorna Hudder, CMO, CAO/Clerk, The Corporation of the Township of Killaloe, Hagarty and Richards, including: (1) the cover letter dated May 22, 2009 from Heather Merritt, CEPIT, to Ministry, EAAB, requesting the addition of MOLOK containers at the Site, and including a site plan and information on the MOLOK containers.

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

The reason for Definition and Conditions 32 and 33 is to allow the Township to undertake a small organic waste depot program.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A412303 dated May 18, 2000

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 eachportion 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 4th day of September, 2009

THIS NOTICE WAS MAILED
ON Sept. 8, 2009
(Signed)

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

HV/

c: District Manager, MOE Ottawa
Tyler Peters, Greenview Environmental Management Limited ✓

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412303

The Corporation of the Township of Killaloe, Hagarty and Richards
PO Box 39
Killaloe, Ontario K0J 2A0

Site Location: Round Lake Landfill
Lot 27, Concession 3
Richards Township, County Of Renfrew

You are hereby notified that I have amended Provisional Certificate of Approval No. A412303 issued on May 8, 2000, as amended on November 6, 2000 and November 7, 2000 for a waste disposal site (landfill), as follows:

The preamble is hereby changed to:

for the use and operation of a 1.62 hectare landfill and a transfer station within a 3.5 hectare total Site area, including a 1.33 hectare attenuation zone and an easement to access BH-10:

The following Conditions are revoked:

Conditions 19 is revoked.

Condition 20 is revoked.

The following Conditions are hereby revoked and replaced:

15. (a) Pursuant to Section 197 of the EPA, neither the Applicant nor any person having an interest in the Site shall deal with the Site in any way without first giving a copy of the Provisional Certificate of Approval to each person acquiring an interest in the Site as a result of the dealing;
    (b) By June 30, 2003, the Owner shall submit to the Director for the Director's signature, two (2) copies of a completed Certificate of Prohibition containing a registerable description of the Site, in accordance with Form 1 of O. Reg. 14/92; and
    (c) Within ten (10) calendar days of receiving the Certificate of Prohibition with the Director's signature, the Owner shall register the Certificate of Prohibition in the appropriate Land Registry Office on title and immediately following registration, submit to the Director the duplicate registered copy.

The following Conditions are hereby added:

25. The Owner shall refrain from further landfilling of waste on the Site, and shall apply intermediate interim cover to all cells where waste has been deposited, until such time as the Owner acquires sufficient property for a contaminant attenuation zone that will meet the long term needs of the Site, or an alternative contingency plan to remediate off-site leachate impacts.

26. In the event of an exceedance of a leachate indicator parameter trigger level, the Owner shall conduct an investigation into the cause and the need for implementation of remedial or contingency actions in accordance with Schedule "C".

27. The Owner shall limit transfer activities to the receiving and transferring of solid, non-hazardous, residential and commercial waste, generated within the Township of Killaloe, Hagarty and Richards, as described in Item 11 of Schedule "A".

28. The Owner shall ensure that all waste accepted for transfer shall be segregated either into bins with lids or doors, or in designated areas as defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

29. The Owner shall ensure that each day on which the Site is open to accept waste for transfer, the Site is inspected and litter is picked up in the waste transfer area.

30. The Owner shall maintain records on transfer activities including:
    (a) date of record;
    (b) number of deliveries and types of materials received;
    (c) quantities and destination of waste transferred from the Site; and
    (d) any accidents, injuries, spills, leaks, other upsets or complaints received.

    The Owner shall summarize the above information for inclusion in the annual report submitted to the District Manager.

The following are hereby added to Schedule "A":

7. Application to amend a Certificate of Approval for a Waste Disposal Site, dated May 2, 2002 and signed by Janice Bush, Reeve, Township of Killaloe, Hagarty and Richards.

8. Letter from K. Mooder, Jp2g Consultants Inc. to EAAB dated June 6, 2002 summarizing amendment requests.

9. Plan 49R-14688 and Transfer/Deed of Land for the purchase of Part Lot 27, Concession 3, being Part 1 on Reference Plan 49R-14688 and for the grant of easement of Part Lot 27, Concession 3 being Parts 2 & 3 on Reference Plan 49R-14688.

10. Letter from K. Mooder, Jp2g Consultants Inc. to EAAB dated June 26, 2002 including Drawing No. 1 "Round Lake Landfill Site - Buffer Zone Plan".

11. Letter from D. Bohart, Chair, Killaloe, Hagarty and Richards Waste Management Committee, to EAAB, dated February 24, 2003 providing details of the waste transfer activities which take place at Round Lake waste disposal site.

12. Letter from B.J. Velderman, Golder Associates Ltd. to EAAB, dated February 27, 2003 providing clarification of Schedule "B" monitoring program and details of the trigger mechanisms for Round Lake.

13. Fax from K. Mooder to EAAB, dated April 2003 providing a final version of Schedule "B" sampling program and Schedule "C" trigger mechanism and remedial action plan.

Schedule B is hereby revoked and replaced with:

SCHEDULE "B"

This Schedule "B" forms part of Provisional Certificate of Approval No. A412303.

	Sampling Location	**Parameters**	**Sampling Frequency**
Background and Surveillance	BH-1, BH-2S, BH-2D, BH-5, BH-8, BH95-9, BH01-12D, BH01-13S, BH01-13D, BH01-14, duplicate	pH, temperature, conductivity, chloride, hardness, sodium, iron, manganese, alkalinity, nitrate, total dissolved solids, barium, boron, chromium, ammonia, calcium, magnesium, potassium, aluminium, cobalt, copper, total phosphorous, silicon, strontium, sulphate, zinc, TKN, COD, DOC	biannually in the spring (May/June) and fall (September/October)
Routine	BH-6, BH95-10, BH01-15, duplicate	pH, temperature, conductivity, chloride, hardness, sodium, iron, manganese, alkalinity, barium, boron, chromium, sulphate, nitrate, DOC, TDS	annually in the fall (September/October)
Volatile Organic Compounds	BH-1, BH-2S, BH-2D, BH-5, BH95-9, BH01-14, trip blank, field blank, duplicate	parameters included in US Environmental Protection Agency 624 list	annually in the fall (September/October)

Water Levels	BH-1, BH-2S, BH-2D, BH-3, BH-4, BH-5, BH-6, BH-7, BH-8, BH95-9, BH95-10, BH95-11, BH01-12D, BH01-13S, BH01-13D, BH01-14, BH01-15	water levels	biannually in the spring (May/June) and fall (September/October)

SCHEDULE "C"

This Schedule "C" forms part of the Certificate of Approval No. A413103.

Section A: Trigger Mechanism for Round Lake Landfill

The objective of the groundwater trigger mechanism at the Round Lake Landfill Site is to utilize the results of the ongoing groundwater monitoring program to assess site compliance and to trigger implementation of contingency plans, when and if necessary. The purpose of the trigger mechanism is to prevent leachate-impacted groundwater exceeding MOE Guideline B-7 from migrating beyond the site boundaries. For the purpose of the trigger mechanism, the following shall apply:

The *Leachate Indicator Parameters* for the Round Lake Landfill include: alkalinity, barium, boron, calcium, chloride, chromium, conductivity, hardness and total dissolved solids (TDS).

The *Compliance Evaluation Parameters* for Round Lake Landfill are barium, boron, chloride, chromium and volatile organic compounds.

The *Reasonable Use Performance Objective (RUPO)* refers to the maximum allowable concentration for a *Compliance Evaluation Parameter* in groundwater at the point of compliance under MOE Guideline B-7.

The *Trigger Concentration* for Round Lake Landfill shall be over 75 percent of the *Reasonable Use Performance Objective* for the *Compliance Evaluation Parameters* at monitors BH-8, BH-95-9, BH01-13D and BH01-14.

Any observed exceedance of the *Trigger Concentration(s)* will be verified by re-sampling for the parameter(s) of concern within one month of the original sampling session at which non-compliance with the trigger was initially measured. If the exceedance is not confirmed by the follow-up sample (Special Monitoring Session), then the initial exceedance will be considered anomalous and will be discounted. The historical trends in the groundwater quality at the trigger location shall also be used in concluding that monitoring results are anomalous.

Concurrent with the Special Monitoring Session will be the initiation of a three-step process for the purpose of determining whether implementation of an additional investigation program and/or the remedial action plan is warranted. The three-step process would be as follows:

Step 1 assess whether or not non-compliance with the applicable *Trigger Concentrations* is likely due to migration of the landfill leachate plume as a whole, or whether it is partially or wholly explicable by other factors. This will be achieved by considering trends in parameter concentrations at all relevant monitoring locations;

Step 2 discussion of the results of Step 1 among the Township, consultants and the MOE to decide whether implementation of an additional investigation program and/or the

remedial action plan is warranted; and

Step 3 if the conclusion of Step 2 is affirmative, then the additional investigation program and/or remedial action plan would be formulated and would be implemented.

Remedial action, as presented in Section B, shall be implemented when the *Trigger Concentration* at one monitoring location for two (2) parameters has been met or exceeded during two (2) consecutive monitoring sessions.

Section B: Remedial Action Plan

Under MOE Guideline B-7, the Owner of a waste disposal site is responsible for preventing unacceptable off-property groundwater impacts. Should the ongoing groundwater monitoring program define the existence of, or potential for, unacceptable impacts, the Owner shall prepare and present a Remedial Action Plan for the approval of the Director or the District Manager. Actions taken by the Township to prevent or remediate the off-property impacts shall consist of:

(a) acquisition of additional land to obtain compliance with MOE Guideline B-7; or
(b) gaining control over the migration of the contaminated groundwater; or
(c) gaining control over the migration of the contaminants.

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

1. *Conditions 19 and 20 are revoked to reflect the Owner's acquisition of additional property.*

2. *Condition 15 is amended to ensure that the additional property acquired by the Owner as part of this Certificate is registered on title.*

3. *Conditions 25 and 26 are added to prevent additional contamination of the natural environment and to protect the health and safety of area groundwater users.*

4. *Conditions 27, 28 and 29 are included to ensure that the transfer activities are conducted in a manner which does not negatively impact the public health and safety or the environment.*

5. *Condition 30 is included to ensure that the Site is operated as stated in the application and not in a manner which the Director has not been asked to consider.*

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A412303 dated May 8, 2000, as amended on November 6, 2000 and November 7, 2000.

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 <u>each</u> 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

<u>AND</u>

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 8th day of April, 2003

THIS CERTIFICATE WAS MAILED
ON April 16, 2003
9c
(Signed)

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

VP/
c: District Manager, MOE Ottawa
Kevin Mooder, Jp2g Consultants Inc. ✓

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412303
Notice No. 1

Corporation of the Township of Killaloe, Hagarty and Richards
1 John Street, P.O. Box 39
Killaloe, Ontario
K0J 2A0

RECEIVED
NOV 2 3 2000

Site Location: Round Lake Landfill
Lot 27, Concession 3
Killaloe Village, County Of Renfrew

You are hereby notified that I have amended Provisional Certificate of Approval No. A412303 issued on May 18, 2000 for a landfill site, as follows:

the address of the owner has changed

FROM: Corporation of the Township of Hagerty and Richards
Regional Road #2
Killaloe, Ontario
K0J 2W0

TO: Corporation of the Township of Killaloe, Hagarty and Richards
1 John Street, P.O. Box 39
Killaloe, Ontario
K0J 2A0

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A412303 dated May 18, 2000.

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 Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. 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;

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 Appeal Board
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

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 Appeal Board's requirements for an appeal can be obtained directly from the Board 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 7th day of November, 2000

Andrzej Dominski, P.Eng.
Director
Section 39, *Environmental Protection Act*

THIS IS A TRUE COPY OF THE
ORIGINAL CERTIFICATE MAILED

ON ..... NOV 10 2000 .....

(Signed)

IP/

c: District Manager, MOE Ottawa
Kevin Mooder, Jp2g Consultants Inc.

NOV 17 2

Ontario

Ministry of the Environment | Ministère de l'Environnement

AMENDMENT TO PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER A412303
Notice No. 1

Corporation of the Township of Killaloe, Hagarty and Richards
1 John Street, P.O. Box 39
Killaloe, Ontario
K0J 2A0

Site Location: Round Lake Landfill
Lot 27, Concession 3
Killaloe Village, County Of Renfrew

You are hereby notified that I have amended Provisional Certificate of Approval No. A412303 issued on May 18, 2000 for a waste disposal site (landfill), as follows:

Condition 19 is hereby revoked and replaced by:

19. By February 1, 2001, the Owner shall do one of the following:

(a) acquire ownership of a sufficient amount of land adjacent to the Site, that will bring the Site into compliance with the RUPO;
(b) acquire the property rights, as defined in O.Reg. 232, for a sufficient amount of land adjacent to the Site, that will bring the Site into compliance with the RUPO;
(c) submit to the Director, for approval, an application for Site remediation technologies or measures designed to bring the Site into compliance with the RUPO; or
(d) cease receiving any waste at the Site and submit a Closure Plan, for approval of the Director.

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

The reason for this amendment is to approve a request to extend the compliance date in this condition to February 1, 2001.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A412303 dated May 18, 2000.

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 Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

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 Appeal Board
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

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 Appeal Board's requirements for an appeal can be obtained directly from the Board 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 6th day of November, 2000

THIS IS A TRUE COPY OF THE ORIGINAL NOTICE MAILED

C: Nov 7, 2000

BK

SIGNED

Yvonne Hall, P.Eng.
Director
Section 39, *Environmental Protection Act*

BK/
c: District Manager, MOE Ottawa
Kevin J. Mooder, Greer Galloway Group Inc.

ROUND LAKE

Ontario

Ministry of the Environment / *Ministère de l'Environnement*

PROVISIONAL CERTIFICATE OF APPROVAL
FOR A WASTE DISPOSAL SITE
NO. A 412303

RECEIVED
MAY 29 2000

Under the Environmental Protection Act and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

The Corporation of the Township of Hagarty and Richards
R.R. #2
Killaloe, Ontario
K0J 2A0

for the use and operation of a 1.62 hectare landfill within a 2.4 hectare total Site area;

all in accordance with the following plans and specifications:

The application and supporting information as listed in Schedule "A", which is attached to this Provisional Certificate of Approval and forms part of this Certificate;

Located: Part Lot 27, Concession 3 (Richards Township)
Township of Hagarty and Richards
County of Renfrew

which includes the use of the site only for the disposal of the following categories of waste (Note: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval) Municipal Waste

and subject to the following conditions:

A. DEFINITIONS

For the purpose of this Provisional Certificate of Approval:

1) "Act" and "EPA" mean the **Environmental Protection Act**, R.S.O. 1990, C. E-19 as amended;

2) "Applicant", "Owner" and "Operator" mean the Township of Hagarty and Richards, including its officers, employees, agents or contractors;

3) "Certificate" means this entire Provisional Certificate of Approval including its schedules, if any, issued in accordance with Section 27, Part V of the **Environmental Protection Act;**

4) "Director" means a Director, Environmental Assessment and Approvals Branch of the Ministry of the Environment;

"District Manager" means the District Manager of the Ottawa District Office, Eastern Region of the Ministry;

"Ministry" means the Ontario Ministry of the Environment (MOE);

"Municipal Waste" is as defined in Ontario Regulation 347, R.R.O. 1990;

"O.Reg. 232" means Ontario Regulation 232/98 (Landfilling Sites), R.R.O. 1990;

"RUPO" means the Ministry of the Environment Reasonable Use Policy Objectives (Guideline B-7);

"Site" means the landfill site as described in this Certificate; and

"Waste fill area" means the area on the surface of the site beneath which or above which waste is disposed by landfilling.

3. GENERAL

The Provisional Certificate of Approval No. A 412303, dated April 2, 1980 is hereby revoked and replaced by this Certificate.

Except as otherwise provided by these Conditions, the Site shall be operated and maintained, in accordance with the Applications for a Certificate of Approval for a Waste Disposal Site, dated September 21, 1998, and its supporting documents as listed in Schedule "A".

The requirements specified in this Certificate are the requirements under the **Environmental Protection Act**, R.S.O. 1990. The issuance of this Certificate in no way abrogates the Applicant's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

The requirements of the Certificate are severable. If any requirement of this Provisional Certificate of Approval, or the application of any requirement of the Provisional Certificate of Approval to any circumstance, is held invalid, the application of such requirement to other circumstances and the remainder of the Provisional Certificate of Approval shall not be affected in any way.

The Applicant shall ensure compliance with all the terms and conditions of this Certificate. Any non-compliance constitutes a violation of the **Environmental Protection Act**, R.S.O. 1990 and its grounds for enforcement.

(a) The Applicant shall, forthwith upon request of the Director, District Manager, or Provincial Officer (as defined in the Act), furnish any information requested by such persons with respect to compliance with this Certificate, including but not limited to, any records required to be kept

(b) In the event, the Applicant provides the Ministry with information, records, documentation or notification in accordance with this Certificate (for the purposes of this condition referred to as "Information"),

i. the receipt of Information by the Ministry;

ii. the acceptance by the Ministry of the Information's completeness or accuracy; or

iii. the failure of the Ministry to prosecute the Applicant, or to require the Applicant to take any action, under this Certificate or any statute or regulation in relation to the Information;

shall not be construed as an approval, excuse or justification by the Ministry of any act or omission of the Applicant relating to the Information, amounting to non-compliance with this Certificate or any statute or regulation.

7. The Applicant shall allow Ministry personnel, or a Ministry authorized representative(s), upon presentation of credentials, to:

(a) carry out any and all inspections authorized by Section 156, 157 or 158 of the **Environmental Protection Act**, R.S.O. 1990, Section 15, 16 or 17 of the **Ontario Water Resources Act**, R.S.O. 1990, or Section 19 or 20 of the **Pesticides Act**, R.S.O. 1990, as amended from time to time, of any place to which this Certificate relates; and

without restricting the generality of the foregoing, to:

(b) i. enter upon the premises where the records required by the conditions of this Certificate are kept;

ii. have access to and copy, at reasonable times, any records required by the conditions of this Certificate;

iii. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the conditions of this Certificate; and

iv. sample and monitor at reasonable times for the purposes of assuring compliance with the conditions of this Certificate.

8. (a) Where there is a conflict between a provision of any document referred to in Schedule "A" and the conditions of this Certificate, the conditions in this Certificate shall take precedence; and

(b) Where there is a conflict between documents listed in Schedule "A", the document bearing the most recent date shall prevail.

The Applicant shall ensure that all communications/correspondence made pursuant to this Certificate includes reference to the Certificate approval number A 412303.

The Applicant shall notify the Director in writing of any of the following changes within thirty (30) days of the change occurring:

(a) change of Applicant or Operator of the Site or both;

(b) change of address or address of the new Applicant;

(c) change of partners where the Applicant or Operator is or at any time becomes a partnership, and a copy of the most recent declaration filed under the **Business Names Act**, 1991 shall be included in the notification to the Director;

(d) any change of name of the corporation where the Applicant or Operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (form 1 or 2 of O. Reg. 182, Chapter C-39, R.R.O. 1990 as amended from time to time), filed under the **Corporations Information Act** shall be included in the notification to the Director; and

(e) change in directors or officers of the corporation where the Applicant or Operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" as referred to in 10(d), supra.

1. In the event of any change in ownership of the Site, the Applicant shall notify, in writing, the succeeding owner of the existence of this Certificate, and a copy of such notice shall be forwarded to the Director.

2. Any information relating to this Certificate and contained in Ministry files may be made available to the public in accordance with the provisions of the **Freedom of Information and Protection of Privacy Act**, R.S.O. 1990, C. F-31.

3. All records and monitoring data required by the conditions of this Certificate shall be kept on the Owners's premises for a minimum period of two (2) years from the date of their creation.

4. The obligations imposed by the terms and conditions of this Certificate are obligations of due diligence.

. PROHIBITION AND REGISTRATION ON TITLE

5. (a) Pursuant to Section 197 of the EPA, neither the Applicant nor any person having an interest in the Site shall deal with the Site in any way without first giving a copy of the Provisional Certificate of Approval to each person acquiring an interest in the Site as a result of the dealing;

(b) By October 31, 2000, the Applicant shall submit to the Director for the Director's signature two [illegible] Certificate of Prohibition containing a register able description of the

(c) Within ten (10) calendar days of receiving the Certificate of Prohibition, the Applicant shall register the Certificate of Prohibition in the appropriate Land Registry Office on title and immediately following registration, submit to the Director the duplicate registered copy.

D. SITE OPERATIONS

16. This Site shall only receive Municipal Waste that is generated from within the Township of Hagarty & Richards.

17. The final volumetric capacity of this Site, excluding final cover, is 94,974 cubic metres.

18. Waste shall be managed and landfilled at the Site in accordance with the items listed in Schedule "A".

19. By October 1, 2000,the Owner shall do one of the following:

(a) acquire ownership of a sufficient amount of land adjacent to the Site, that will bring the Site into compliance with the RUPO;
(b) acquire the property rights, as defined in O.Reg. 232, for a sufficient amount of land adjacent to the Site, that will bring the Site into compliance with the RUPO;
(c) submit to the Director, for approval, an application for Site remediation technologies or measures designed to bring the Site into compliance with the RUPO; or
(d) cease receiving any waste at the Site and submit a Closure Plan, for approval of the Director.

20. (a) If the Owner acquires of ownership or control of additional land, as specified in Conditions 19(a) or 19(b), then the Owner shall construct three additional groundwater monitoring wells by May 30, 2001, as specified in Item (4) of Schedule "A"; or

(b) If the Owner submits an application or a Closure Plan as specified in Conditions 19(c) or 19(d), a revised groundwater monitoring program, including a schedule for installing monitoring wells, shall be submitted to the Director, for approval.

E. MONITORING AND REPORTING

21. The Owner shall conduct surface and ground water sampling at the frequencies and for the parameters specified in Schedule "B", as modified by the District Manager. By March 31, 2001 and on an annual basis thereafter, the Owner shall submit to the District Manager, an Annual Report that contains the following, for the previous calendar year:

(a) the analytical results of the sampling program;
(b) an analysis of the results of the monitoring programs conducted at the Site to date;
(c) recommendations for any alterations to the monitoring or operation of the Site;

(e) an estimate of the total amount of waste landfilled and an estimate of the Site's remaining capacity;
(f) a statement as to compliance with the terms and conditions of the Certificate;
(g) a summary of complaints regarding the operation the Site and the Owner's response to those complaints; and
(h) an assessment of the need to develop and implement contingency plans for leachate control.

SITE CLOSURE

One (1) year prior to the Site reaching the capacity specified in Condition (17), the Owner shall submit to the Director, for approval, a plan for the closure, monitoring and long term maintenance of the Site.

G. EMERGENCIES

In case of an emergency or a spill at this Site, the Applicant shall forthwith call the Ministry of the Environment Spills Action Centre **(1-800-268-6060)** or the District Office.

H. RECORD KEEPING

The Company shall maintain records of the results of all inspections and monitoring and a summary of all activities associated with the Site (e.g. spills, maintenance work) in a record book located at the Site.

SCHEDULE "A"

This Schedule "A" forms part of Provisional Certificate of Approval No. A 412303:

Application to amend a Certificate of Approval for a Waste Disposal Site, dated September 21, 1998 and signed by Janice Bush, Reeve, Township of Hagarty & Richards.

Document entitled "Design and Operations Report for the Round Lake Landfill Site, Provisional Certificate of Approval A412303", dated September 1998 and prepared by The Greer Galloway Group Inc.

3. Document entitled "Revised Report on Round Lake Landfill, Hydrogeology", dated September 1998 and prepared by Golder Associates.

4. Letter from I. Parrott, MOE to K. Mooder, The Greer Galloway Group Inc. dated July 8, 1999 re: Ministry Review Comments.

5. Letter from K. Mooder, The Greer Galloway Group Inc. to I. Parrott, MOE, dated November 9, 1999 re: Response to Ministry Review Comments dated July 8, 1999.

6. Letter from B.J. Velderman, Golder Associates Ltd. to I. Parrott, MOE, dated March 15, 2000 re: Modified Surface Water Monitoring.

SCHEDULE "B"

This Schedule "B" forms part of Provisional Certificate of Approval No. A 412303:

GROUNDWATER MONITORING

On a semi-annual basis every spring (May/June) and fall (September/October), samples shall be taken and analysed in the following manner:

Routine Groundwater Monitors, BH-1, BH-5, BH-6, BH95-10, shall be sampled and analyzed for the following parameters:

water level, temperature, conductivity, pH, chloride, hardness, sodium, iron, manganese, alkalinity, sulphate, nitrate, DOC and TDS.

Surveillance Groundwater Monitors, BH-2-D, BH-2-S, BH-8, BH95-9 and three additional wells to be constructed, shall be sampled and analysed for the following parameters:

water level, temperature, conductivity, pH, ammonia, calcium, magnesium, sodium, potassium, aluminum, barium, boron, chromium, cobalt, copper, iron, manganese, nitrate, total phosphorus, silicon, strontium, sulphate, zinc, alkalinity, TDS, chloride, TKN, COD, DOC and hardness.

SURFACE WATER MONITORING

On a semi-annual basis every spring (May/June) and fall (September/October), samples shall be taken from Surface Water Stations SW-A, SW-C, SW-D and SW-F and analysed in the following manner:

flow rate, DO, pH, conductivity, temperature, ammonia, chloride, calcium, magnesium, sodium, iron, manganese, phenols, alkalinity, sulphate, nitrite, nitrate, DOC and TDS.

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

1. Conditions 1, 3, 4, 5, 6, 8, 9, 10, 11, 12 and 13 are to clarify the legal rights and obligations of this Certificate.

2. Condition 7 is to ensure that the appropriate Ministry staff have ready access to the waste Site to inspect the operations that are approved under this Certificate. The condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the **Environmental Protection Act**, as amended.

3. Conditions 2, 21 and 24 are to ensure that the waste disposal Site is operated in accordance with the application for this Certificate and supporting information and not in any way or under any name which the Director has not been asked to consider.

4. Condition 14 is required to clarify that the terms and conditions of this Certificate impose a standard of due diligence and not absolute liability.

5. The reason for Condition 15, which requires registration of the Certificate, is that Section 46 of the Environmental Protection Act prohibits any use being made of the lands after they cease to be used for waste disposal purposes within a period of twenty-five years from the year in which such land ceased to be used, unless the approval of the Minister for the proposed use has been given. The purpose of this prohibition is to protect future occupants of the site and the environment from any hazards which might occur as a result of waste being disposed of on the site. This prohibition and potential hazard should be drawn to the attention of future owners and occupants by the Certificate being registered on title.

6. The reason for Conditions 16, 17, 18, 19, 20, 22 and 23 is to ensure that the Site is operated and maintained in a manner that protects the health and safety of people and the environment.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990 c. E-19, you may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 142 of the Environmental Protection Act, as amended provides that the Notice requiring a 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 <u>each</u> portion appealed.*

In addition to these legal requirements, 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;*

This Notice must be served upon:

The Secretary,
Environmental Appeal Board,
800 Yonge St., 12th Floor,
P.O. Box 2382
Toronto, Ontario.
M4P 1E4

AND

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

Further information on the Environmental Appeal Board's requirements for an appeal can be obtained directly from the Board by: Tel: (416) 314-4600, Fax: (416) 314-4506 or e-mail: www.ert.gov.on.ca.

DATED AT TORONTO this 18th day of May, 2000.

A. Dominski, P. Eng.,
Director,
Section 39,
Environmental Protection Act

/kb

c: District Manager, Ottawa District Office, MOE
K. Mooder, The Greer Galloway Group Inc.

THIS IS A TRUE COPY OF THE ORIGINAL CERTIFICATE MAILED

ON 24-5-2000

RA
(Signed)

Ministry of the Environment
Ontario

Provisional Certificate No. A 412303

PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Township of Hagarty and Richards
R.R. # 1
Wilno, Ontario
K0J 2N0

MINISTRY OF THE ENVIRONMENT
APR 16 1980
PEMBROKE

for the use and operation of a 2.4 hectare landfilling site

all in accordance with the following plans and specifications:

Located: S.½ Lot 29, Concession 2
Township of Richards
County of Renfrew

which includes the use of the site only for the disposal of the following categories of waste (NOTE: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval) domestic waste and brush

and subject to the following conditions:

1. No operation shall be carried out at the site after sixty days from this condition becoming enforceable unless this Certificate including the reasons for this condition has been registered by the applicant as an instrument in the appropriate Land Registry Office against title to the site and a duplicate registered copy thereof has been returned by the applicant to the Director.

THIS IS A TRUE COPY OF THE
ORIGINAL CERTIFICATE MAILED
ON Apr. 10/80
.....
(Signed)

Dated this 2nd day of April, 1980.

Director, Section 39,
The Environmental Protection Act, 1971

APPENDIX B

Correspondence

Greenview
ENVIRONMENTAL MANAGEMENT

October 24, 2012

BY ELECTRONIC MAIL ONLY

Ontario Ministry of the Environment
Environmental Approvals Branch
2 St. Clair Avenue, Floor 12A
Toronto, Ontario
M4V 1L5

Attention: Mr. Dale Gable
Senior Review Engineer – Approval Services Unit, Environmental Operations Division

Re: Response to Draft Amended ECA (MOE Reference No: 8199-8R3PZB) and MOE Groundwater Review of the 2011 Annual Report
Round Lake Waste Disposal Site (A412303)
Township of Killaloe, Hagarty, and Richards, County of Renfrew, Ontario
Greenview File: 107.12.003

Dear Mr. Gable:

Greenview Environmental Management Limited (Greenview), on behalf of the Township of Killaloe, Hagarty, and Richards (Township), has prepared this submission in response to the groundwater review of the *2011 Annual Report* for the Round Lake waste disposal site (WDS) by the Ontario Ministry of the Environment (MOE) Technical Support Section (TSS) dated August 28, 2012 (attached) and the draft *Amended Environmental Compliance Approval* (ECA) dated October 5, 2012 (attached) for the Round Lake WDS (A412306).

Item 1 – MOE TSS Groundwater Review Comments of the 2011 Annual Report

Further to the MOE TSS groundwater review of the *2011 Annual Report* for the Round Lake WDS (attached), the Township notes the following select review comments:

Sampling of Volatile Organic Compounds Every Five (5) Years

The Township is in agreement with the MOE TSS groundwater review of the *2011 Annual Report* dated August 28, 2012 with reference to altering the sampling frequency of volatile organic compounds (VOC) to once every five (5) years. VOC will be sampled as part of the fall sampling event at the Round Lake WDS in 2012, and the next sampling event will be scheduled for fall 2017.

Per the MOE TSS groundwater review comments, VOC will be sampled at a leachate characterization well (BH-2D) and two (2) downgradient monitoring wells (BH01-14 and BH95-9). VOC will also be sampled at background monitoring wells BH-1 and BH-5 for comparison purposes. The proposed monitoring wells to be sampled as part of the VOC sampling events every five (5) years are consistent with the historical groundwater

monitoring program at the Round Lake WDS.

Comparison of Downgradient Groundwater Quality to the Provincial Water Quality Objectives

In response to the MOE TSS groundwater review of the *2011 Annual Report* and the recommendation that groundwater downgradient and to the north of the interim-closed landfill should be compared to the *Provincial Water Quality Objectives* (PWQO) for surface water, the Township disagrees with this recommendation based on the fact that the nearest surface water (Sherwood Creek) is located approximately 350 meters (m) to the north of the northern property boundary and monitoring well BH95-9, and approximately 390 m from the northern boundary of the interim-closed landfilling area at the site.

As no exceedances of the *Ontario Drinking Water Quality Standards* (ODWS) or the *Reasonable Use Concept* (RUC) interpreted to landfill-related sources have historically been observed at the most downgradient monitoring well in the vicinity of the Round Lake WDS (BH95-10), located approximately 250 m south of Sherwood Creek and approximately 100 m northeast of monitoring well BH95-9, the comparison of downgradient groundwater quality to PWQO is not interpreted to be an effective method for determining potential downgradient impacts at the site. The Township notes that, based on historical groundwater data at the site, there is no evidence to suggest that negative impacts related to groundwater to surface water interactions are occurring downgradient of the Round Lake WDS.

The Township agrees with the MOE TSS groundwater review that the likelihood of surface water impacts from the Round Lake WDS remains low, consistent with the removal of surface water monitoring at the site with the issuance of the *Amendment to the Provisional Certificate of Approval (A412303)* dated April 8, 2003.

Iron and Manganese Concentrations in Groundwater

Further to the MOE TSS groundwater review of the *2011 Annual Report* with regards to downgradient iron concentrations, the Township is in agreement with the review that downgradient concentrations of iron are elevated in groundwater quality at monitoring well BH95-9 above background concentrations noted at monitoring wells BH-1 and BH-5. However, similar concentrations of iron are not observed in historical groundwater quality from monitoring well BH95-10, located approximately 100 m northeast of monitoring well BH95-9.

In regards to the MOE TSS groundwater review concerning elevated manganese concentrations in groundwater quality from monitoring BH95-9, the Township disagrees with the MOE TSS review that observed manganese concentrations in groundwater quality at BH95-9 are landfill-related, as concentrations of manganese in historical background groundwater quality at monitoring well BH-5 are generally significantly elevated in comparison to concentrations observed at BH95-9. For example, in May 2011 and May 2010 the concentrations of manganese observed in groundwater from BH-5 (background) were 0.309 and 0.718 milligrams per litre (mg/L), respectively, while the manganese concentrations observed in groundwater from monitoring well BH95-9 from the same groundwater sampling events were noted to be 0.175 and 0.199 mg/L, respectively. This disparity in manganese concentrations between background (BH-5) and downgradient (BH95-9) groundwater quality suggests that

manganese concentrations are naturally elevated in groundwater in the vicinity of the site, independent of the interim-closed landfill. The Township also notes that no exceedances of the ODWS and RUC for concentrations of manganese at the most downgradient monitoring well in the vicinity of the site, BH95-10, have historically been observed.

Per the MOE TSS groundwater review of the *2011 Annual Report*, the Township is in agreement with the reviewer's recommendation that further evaluation between concentrations of the leachate indicator parameters (alkalinity, barium, boron, calcium, chloride, chromium, conductivity, hardness, and total dissolved solids [TDS]) and concentrations of iron and manganese should be conducted in the *2012 Annual Report* for the Round Lake WDS.

Item 2 – Draft Amended Environmental Compliance Approval Review

The Township has reviewed the draft ECA dated October 5, 2012 (attached), and offers the following specific review comments pertaining to individual conditions of the draft ECA.

Site Location

The Township notes that the site location should be amended to the following:

> Round Lake Waste Disposal Site
> 168 Sunrise Road
> Part Lot 27, Concession 3
> Township of Killaloe, Hagarty, and Richards, County of Renfrew

Definitions – "Site" or "WDS"

The Township recommends that the definition for "Site" and "WDS" be amended to the following:

> "Site" or "WDS" refers to the Round Lake Waste Disposal Site and lands owned by the Owner described as:
>
> i. Part Lot 27, Concession 3, Township of Killaloe, Hagarty, and Richards, County of Renfrew;

Condition 2.2 – Operations Manual

The Township is in agreement with the requirements of Condition 2.2 – Operations Manual, and will prepare a *Operations Manual* that addresses the requirements of Condition 2.2 related to current operational practices at the Round Lake WDS within ninety (90) days of the issuance of the final ECA.

Condition 2.10 – Signage

The Township is in agreement with the requirements of Condition 2.10 – Signage, and will prepare and erect new site signage at the Round Lake WDS consistent with the requirements of Condition 2.10 of the ECA and the new transfer station infrastructure. The installation of updated site signage was part of the planned construction

activities of the new transfer station, and installation of the updated signage is anticipated for spring 2013.

Condition 4.8 - Operations

The Township notes that Condition 4.8 – Operations should be amended per the following:

> 4.8 – The operating hours of the *Waste Transfer Facility* shall be identified as those in *Condition 2.6* in this *Amended ECA*.

Condition 4.12 – Organics Depot Program

The Township requests that Condition 4.12 – Organics Depot Program be amended per the following:

> 4.12 - The organics depot program at the *Site* shall consist of the on-*Site* collection and transfer of organic waste that is stored in a maximum of two (2) specialized MOLOK containers with a total storage capacity of 1.6 cubic metres, in accordance with the specifications in Item 14 of Schedule "A".

The Township recommends the above noted amendments to Condition 4.12 given that the MOLOK containers were relocated as part of transfer station construction activities, due to operational constraints and an effort by the Township to provide its site users with an ergonomic transfer location for source-separated organics at the Round Lake WDS. The final location of the MOLOK containers will be identified in as-built drawings of the completed transfer station in the *Operations Manual* required as part of the requirements of Condition 2.2 – Operations Manual.

Condition 8.2 – Contingency Plans

The Township notes that Condition 8.2 – Contingency Plans appears to redundant to the requirements of Schedule "C" – Section B: Remedial Action Plan of the draft ECA. As the Round Lake WDS is currently interim-closed and has not accepted waste for landfilling since 2003, it is the Township's position that the requirements identified in Schedule "C" – Section B: Remedial Action Plan are sufficient for contingency measures at the site related to preventing unacceptable off-property groundwater issues.

The Township requests that Condition 8.2 be removed from the ECA for the Round Lake WDS.

Condition 10.3 – Emergency Situations

The Township is in agreement with the requirements of Condition 10.3 – Emergency Situations, and will prepare an *Emergency Response Manual* for the site in consultation with local emergency response agencies, within sixty (60) days of the issuance of the final ECA.

Schedule "A"

The Township requests that this response letter to the MOE be included in Schedule "A" of the final ECA for the Round Lake WDS.

Schedule “B” – Groundwater Monitoring

The Township requests that Schedule “B” – Groundwater Monitoring be updated to the following, per Table 1 (below) and in accordance with the MOE TSS groundwater review of the *2011 Annual Report*:

Table 1: Groundwater Monitoring

Monitoring Requirement	Sampling Location	Parameters	Sampling Frequency
Background and Surveillance	BH-1, BH-2S, BH-2D, BH-5, BH-8, BH95-9, BH01-12D, BH01-13S, BH01-13D, BH01-14 R1 (Residential) QA/QC	Alkalinity, aluminum, ammonia, barium, boron, calcium, chloride, chromium, cobalt, COD, copper, DOC, hardness, iron, magnesium, manganese, nitrate, nitrite, potassium, silicon, sodium, strontium, sulphate, TDS, TKN, total phosphorus, zinc Field Measurements: conductivity, pH, temperature	Twice (2) annually in the spring (April/May/June) and fall (September/October/ November)
Routine	BH-6, BH95-10, BH01-15 QA/QC	Alkalinity, barium, boron, chloride, chromium, DOC, hardness, iron, manganese, nitrate, nitrite, sodium, sulphate, TDS Field Measurements: conductivity, pH, temperature	Once (1) annually in the fall (September/October/ November)
Volatile Organic Compounds	BH-1, BH-2S, BH-2D, BH-5, BH95-9, BH01-14 Trip Blank Field Blank QA/QC	EPA 624 VOC’s	Once (1) every five (5) years in fall (September/October/ November)
Groundwater Elevations	BH-1, BH-2S, BH-2D, BH-3, BH-4, BH-5, BH-6, BH-7, BH-8, BH95-9, BH95-10, BH95-11, BH01-12D, BH01-13S, BH01-13D, BH01-14, BH01-15	Groundwater elevation measurements (in metres)	Twice (2) annually in the spring (April/May/June) and fall (September/October/ November)

The reasons for the amendments to Schedule “B” – Groundwater Monitoring was to include the parameter “nitrite” to the *Background and Surveillance* and the *Routine* monitoring program requirements, consistent with historical monitoring programs, and to extend the spring and fall sampling frequency schedule to accommodate for early and late onset of spring and fall weather conditions, respectfully.

Summary

Greenview, on behalf of the Township, has prepared this submission in response to the draft ECA (attached) for the Round Lake WDS (A412303), and the MOE TSS's review of the *2011 Annual Report* from a groundwater perspective.

The Township trusts the information contained herein satisfactorily addresses any items and clarifications required prior to the finalization of the ECA for the Round Lake WDS.

If you have any questions regarding this submission, please contact Dan Hagan at 613-332-0057 or dan.hagan@greenview-environmental.ca.

Respectfully yours,

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED

Dan Hagan, B.Sc.
Project Manager / Geologist

Attachments: *DRAFT Amended Environmental Compliance Approval – Round Lake WDS (A412303)*
MOE TSS Groundwater Review of the 2011 Annual Report

c.c. *Steve Burns, District Manager, MOE Ottawa District Office*
Emily Tieu, Senior Environmental Officer, MOE Ottawa District Office
Bob Holland, Hydrogeologist, Technical Support Section – Eastern Region, MOE Kingston District Office
Lorna Hudder, CAO/Clerk-Treasurer, Township of Killaloe, Hagarty, and Richards

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

The Corporation of the Township of Killaloe, Hagarty and Richards
1 John St
Post Office Box, No. 35
Killaloe, Ontario
K0J 2A0

Site Location: Round Lake Waste Disposal Site
168 Sunrise Road
Lot 27, Concession 3
Township of Killaloe, Hagarty and Richards, County of Renfrew

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use and operation of a 1.62 hectare landfill and a waste transfer station within a 3.5 hectare total Site area, including a 1.33 hectare contaminant attenuation zone and an easement to access monitoring well BH95-10.

For the purpose of this environmental compliance approval, the following definitions apply:

"Act" and ***"EPA"*** means the *Environmental Protection Act, R.S.O. 1990, C.E-19* as amended;

*"**Adverse Effect**"* means the same as the definition in the EPA;

"Applicant" means the Township of Killaloe, Hagarty and Richards, including its officers, employees, agents or contractors;

"Blue Box Recyclables" *or* ***"Blue Box Waste"*** means commingled containers (tin, aluminium, steel, plastic, mixed glass) and mixed fibres only for the operations approved in this *Approval;*

"Bulky Waste Materials" or ***"Bulky Household Items"*** mean large items of waste materials, such as appliances and furniture;

"Construction and Demolition Waste" *or* ***"C&D Waste"*** means waste building materials and rubble produced from construction, renovation, repair or demolition operations on houses, commercial buildings, pavements and other structures;

"Design and Operations Plan" means the Design and Operations Plan contained within Item 15 of Schedule "A" of this *Approval* that the Owner has submitted to the Ministry as supporting technical information for the application to amend the current Approval for the Round Lake Waste Disposal Site, as described in Item 15 of 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" refers to the District Manager in the Ministry of the Environment's Ottawa District Office;

"*District Office*" refers to the Ministry of the Environment Ottawa District Office;

"EAB" refers to the *Environmental Approvals Branch* of the *Ministry of the Environment;*

*"**Environmental Compliance Approval" or "ECA"*** or ***"Approval"*** means this entire provisional Environmental Compliance Approval document, issued in accordance with *Section 20.2* of the *EPA*, and includes any schedules to it, the

application and the supporting documentation listed in Schedule "A";

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

"Industrial, Commercial and Institutional Waste" or ***"IC&I Waste"*** means waste generated by industrial, commercial and institutional business sectors;

"*MOE*" or "***Ministry***" refers to the Ontario Ministry of the Environment;

"Municipal Waste" is as defined in *Ontario Regulations 347,* R.R.O. 1990;

"*Operator*" has the same meaning as "operator" as defined in *s.25* of the *EPA*;

"*Owner*" means the Township of Killaloe, Hagarty and Richards;

"O. Reg. 101/94" means *Ontario Regulation 101/94* as amended from time to time;

"Organic Waste" or ***"Source Separated Organic Waste"*** or ***"SSO Waste"*** means source separated residential and/or commercial non-hazardous organic waste consisting of one or more of the following components: food waste, soiled paper products, leaf and yard waste, sanitary products, pet waste;

"***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;*

"Regional Director" refers to the Director of the *Ministry of the Environment*'s Eastern Regional Office;

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

"Residential Waste" means waste generated in single and multi-family homes, including newspapers, clothing, disposable tableware, food packaging, cans, bottles, food scraps and yard trimmings other than those that are diverted to composting;

"RUPO" means the Ministry of the Environment Reasonable Use Policy Objectives (Guideline B-7);

"Site" or ***"WDS"*** refers to the Round Lake Waste Disposal Site and lands owned by the Owner described as:

i. Lots 27, Concession 3, Township of Killaloe, Hagarty and Richards, County of Renfrew;

"Waste Fill Area" means the area on the surface of the site beneath which or above which waste is disposed by landfilling;

"Waste Transfer Facility" or ***"Waste Transfer Station"*** or **"WTS"** refers to the area of land contiguous to the landfill area and part of the Site, to be used for the temporary storage of wastes prior to the removal of the wastes from the Site or for final disposal at the Site.

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

TERMS AND CONDITIONS

1.0 General

1.1 The Requirements specified in this ECA are the requirements under the *Environmental Protection Act, R.S.O. 1990*. The issuance of this Approval in no way abrogates the Applicant's legal obligations to take all reasonable steps to avoid violating other applicable provisions of this legislation and other legislation and regulations.

1.2 The Applicant shall ensure that all communications/correspondence made pursuant to this ECA includes reference to the ECA approval number A 412303.

1.3 The obligations imposed by the terms and conditions of this ECA are obligations of due diligence.

Compliance

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

1.5 Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *ECA*.

In Accordance

1.6 Except as otherwise provided for in this *ECA*, the *Site* shall be operated and maintained in accordance with the application for *Environmental Compliance Approval for a Waste Disposal Site*, dated September 21, 1998, and the supporting documentation listed in Schedule "A".

Other Legal Obligations

1.7 The issuance of, and compliance with, this *ECA* does not:

> (a) relieve any person of any obligation to comply with any provision of the *EPA* or any other 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 request that any further information related to compliance with this *ECA* be provided to the *Ministry* ;

unless a provision of this *ECA* specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this *ECA* .

Adverse Effect

1.8 The *Owner* or *Operator* remain responsible for any contravention of any other condition of this *ECA* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

1.9 Any information requested by the *Director* or a *Provincial Officer* concerning the *Site* and its operation under this *ECA* , including but not limited to any records required to be kept by this *ECA* shall be provided in a timely manner.

1.10 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 *ECA* or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:

> i. an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any condition of this *ECA* or any statute, regulation or other subordinate legal requirement; or
> ii.. acceptance by the *Ministry* of the information's completeness or accuracy.

1.11 Any information related to this *ECA* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

1.12 Where there is a conflict between a provision of any document, including the application, referred to in this *ECA*, and

the conditions of this *ECA,* the conditions in this *ECA* shall take precedence.

1.13 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 in writing**.**

1.14 Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

1.15 The conditions of this *ECA* are severable. If any condition of this *ECA*, or the application of any condition of this *ECA* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *ECA* shall not be affected thereby.

Certificate of Requirement

1.16 Pursuant to Section 197 of the *EPA*, no person having an interest in the *Site* shall deal with the *Site* in any way without first giving a copy of this *ECA* to each person acquiring an interest in the *Site* as a result of the dealing.

1.17 In the event any additional land is acquired for the *Site*, then two (2) copies of a completed Certificate of Requirement, containing a registerable description of the additional lands for the *Site*, shall be submitted to the Director for the Director's signature within sixty (60) calendar days of any amendment to this *ECA* that incorporates the land into the *ECA*.

1.18 In the event any additional land is acquired for the *Site*, then the Certificate of Requirement shall be registered in the appropriate land registry office on title to the *Site* and a duplicate registered copy shall be submitted to the *Director* within ten (10) calendar days of receiving the Certificate of Requirement signed by the *Director*.

No Transfer or Encumbrance

1.19 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 is satisfied with the arrangements made to ensure that all conditions of this *ECA* will be carried out and that sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out.

Change of Owner

1.20 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:

i. the ownership of the *Site* ;
ii. the Operator of the *Site* ;
iii. the address of the *Owner* or *Operator* ;
iv. 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;
v. the name of the corporation where the *Owner* or *Operator* is or at any time becomes a corporation, other than a municipal 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.

1.21 In the event of any change in the ownership of the *Site*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *ECA*, and a copy of such notice shall be forward to the *Director* and *District Manager*.

Inspections

1.22 No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *EPA* or the *PA*, of any place to which this *ECA* relates, and without limiting the foregoing:

i. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *ECA* are kept;
ii. to have access to, inspect, and copy any records required to be kept by the conditions of this *ECA* ;
iii. to inspect the *Site,* related equipment and appurtenances;
iv. to inspect the practices, procedures, or operations required by the conditions of this *ECA* ; and
v. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this *ECA* or the *EPA* or the *PA* .

2.0 GENERAL OPERATIONS

Proper Operation

2.1 The *Site* shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the *EPA* and *Regulation* 347 and the requirements of this *ECA*. At no time shall the discharge of a contaminant that causes or is likely to cause an *Adverse Effect* be permitted.

Operations Manual

2.2 An operations and procedures manual that addresses the requirements of this *ECA* shall be prepared and submitted to the *District Manager* for approval within ninety (90) days of the issuance of this amendment and shall include the following:

(a) Health and safety;
(b) Operation and maintenance of the *Site*;
(c) Waste acceptance;
(d) Waste disposal area and development;
(e) Nuisance management;
(f) Surface water/Storm water management;
(g) Inspections and monitoring;
(h) Contingency plans and emergency procedures;
(i) Complaints; and,
(j) Reporting and record keeping.

2.3 The operations and procedures manual shall be:

i. retained at the *Site*;
ii. reviewed on an annual basis and updated by the *Owner*as required; and
iii. be available for inspection by *Ministry* staff.

Capacity

2.4 (1) The final volumetric capacity of the *Site* is **94,974 cubic metres** (including waste and daily cover material); and

(2) The total capacity as identified in Condition No. 2.4 (1) does not include the final cover.

Service Area

2.5 Only Municipal Waste that is generated in the within the boundaries of the Township of Killaloe, Hagarty and Richards shall be accepted at the *Site***.** No waste shall be received for disposal and/or transfer at this *Site* from outside the approved service area.

Hours of Operation

2.6 (1) Waste shall only be accepted at the *Site* during the following time periods:

i. Thursday - 8:30 a.m. to 4:00 p.m.; and
ii. Sunday - 8:30 p.m to 4:00 p.m.

(2) The site will remain closed to ratepayers and IC&I generators on: Christmas Day, Boxing Day, New Year's Day, Good Friday, Easter Sunday, Easter Monday, Canada Day.

(3) Amending the hours of operation requires *Director*'s Approval.

2.7 With the prior written approval of the *District Manager*, the time periods may be extended to accommodate seasonal or unusual quantities of waste.

2.8 The *Owner* may provide limited hours of operation provided that the hours are posted at the landfill gate and that suitable notice is provided to the public of any change in operating hours.

2.9 Upon reasonable notice to the *Director,* contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Signage

2.10 (1) Signs shall be placed at the landfill *Site* entrance/exit indicating, at a minimum, the following:

(a) Name of the landfill and name of the *Owner/Operator*;
(b) *MOE ECA* Number;
(c) Days and hours of operation and public use;
(d) Contact telephone number at the Township of Killaloe, Hagarty and Richards;
(e) Service area for the *Site*;
(f) Types of waste accepted and prohibited;
(g) Overview of landfill complaints procedure, including a phone number for registering a complaint;
(h) Unauthorized entry is prohibited; and
(i) A warning against dumping wastes outside the *Site*.

(2) The *Owner* shall install and maintain signs to direct vehicles to the landfill working face and transfer station for waste and recyclables.

(3) The *Owner* shall provide signs at recycling depot informing users what materials are acceptable and directing users to appropriate storage area.

Site Security

2.11 During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons

On-Site Roads

2.12 On-*Site* roads shall be provided and maintained in a manner that vehicles hauling waste to and on the *Site* may travel readily and safely on any operating day. During winter months, when the *Site* is in operation, roads must be maintained to ensure safe access to the landfill working face and transfer station. On-*Site* roads must be clear of mud, ice and debris which may create hazardous conditions.

Waste Inspection Procedures

2.13 The *Operator* shall develop and implement a program to inspect waste to ensure that the waste is of a type approved for acceptance under this *ECA*.

Waste Inspection and Deposition

2.14 All loads of waste must be properly inspected by trained site personnel prior to acceptance at the *Site* and waste vehicles must be diverted to appropriate areas for waste disposal and transfer.

Litter Control

2.15 The *Owner* shall take all practical steps to prevent escape of litter from the *Site*. The *Owner* shall inspect and collect litter from the *Site* on a monthly basis from April to November and as needed between December and March. All loose, windblown litter shall be collected and disposed of at the landfill working face if applicable, or transported off-*Site* to be disposed of at an approved facility.

Vermin, Scavenging, Dust, Litter, Odour, Noise, etc.

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

2.17 No scavenging is to occur at the *Site.*

2.18 The *Owner* shall control fugitive dust emissions from on site sources including but not limited to on-*Site* roads, stockpiled cover material and, closed landfill area prior to seeding especially during times of dry weather conditions. If necessary, major sources of dust shall be treated with water and/or dust suppression materials to minimize the overall dust emissions from the *Site.*

2.19 The *Owner* shall comply with noise criteria in MOE Guideline entitled *"Noise Guidelines for Landfill Sites."*

Overall Surface Water Management

2.20 (1) The *Owner* shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.

(2) The *Owner* shall not discharge surface water to receiving water bodies without an approval under the *EPA*.

Landfill Gas

2.21 All buildings are to be free of any landfill gas accumulation. The *Owner* shall provide adequate ventilation systems to relieve landfill gas accumulations in buildings if necessary.

3.0 LANDFILL SITE OPERATIONS

Landfill Operations

3.1 Except as otherwise provided by these Conditions, the landfilling operations at the *Site* shall be conducted in accordance with the Application for an *Environmental Compliance Approval* for a Waste Disposal Site for the Corporation of the Township of Killaloe, Hagarty and Richards, dated September 21, 1998, and the supporting documentation, plans and specifications listed in Schedule "A".

3.2 The *Owner* shall refrain from further landfilling of waste on the *Site*, and shall apply intermediate interim cover to all cells where waste has been deposited, until such time as the *Owner* acquires sufficient property for a contaminant attenuation zone that will meet the long term needs of the *Site*, or an alternative contingency plan to remediate off-Site leachate impacts.

Unacceptable Waste

3.3 (1) The *Owner* shall conduct appropriate inspections and ensure that appropriate controls are in place to prevent the

acceptance and landfilling of liquid industrial waste and hazardous waste and to prevent the acceptance of waste from outside the approved service area.

(2) The *Owner* shall record in the daily records for the *Site* operations any occurrence of unacceptable waste delivered to the *Site*, the name of the waste hauler delivering the waste to the *Site* and waste generator (if known).

(3) The *Owner* shall forthwith notify the *District Manager* of any and all waste load refusals at the *Site* related to requirements in this *ECA*, including service area and waste types.

Burning of Waste

3.4 Burning of waste is not permitted at the *Site*.

Waste Placement

3.5 No waste shall be landfilled outside of the **limit of fill area** for the *Site* as shown in Item 2 in Schedule "A" attached to this *ECA*.

3.6 No waste shall be landfilled below the **base grades** as discussed and shown in Item 2 in Schedule "A" attached to this *ECA*.

3.7 (1) No waste shall be landfilled at any time above the **final waste grades** as shown in Item 2 in Schedule "A" attached to this *ECA*; and

(2) Final slopes above grade at the time of *Site* closure within the waste fill area shall be within the range of 4H:1V (25%) and 20H:1V (5%).

3.8 Waste placement shall occur at a minimum 1 meter above the highest groundwater table elevation at the *Site*.

3.9 No waste shall be landfilled in the buffer area.

3.10 The *Owner* shall deposit waste in a manner that minimizes exposure area at the landfill working face and all waste shall be compacted before cover is applied.

Cover Material

3.11 (1) Daily Cover - By the end of each working day, the entire working face shall be compacted and covered with a minimum thickness of 150 mm of soil cover or an approved thickness of alternative cover material.

(2) Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 mm of soil cover or an approved thickness of alternative cover material shall be placed.

Waste Processing

3.12 The *Owner* shall ensure that the following:

> i. that all *ECA* required for the equipment for the operation and processing waste at the *Site* have been obtained by the *Owner*; or
> ii. that a retained contractor has all the *ECA*'s for the equipment to be used to process waste at the *Site*.

Landfill Surface Water Management

3.13 Stormwater runoff generated from the active waste fill area shall be considered contaminated and treated as leachate. Operational methods shall ensure that any precipitation falling onto active waste fill areas, not under final cover, shall be directed into the waste or into a control structure for testing prior to confirm surface water can be discharged to the

natural environment.

3.14 In the event of an exceedance of a leachate indicator parameter trigger level, the Owner shall conduct an investigation into the cause and the need for implementation of remedial or contingency actions in accordance with Schedule “C”.

4.0 WASTE TRANSFER STATION

Waste Transfer Facility

4.1 Except as otherwise provided by these Conditions, the *Transfer Station* shall be designed, developed, used, maintained and operated, and all facilities, equipment and fixtures shall be built and/or installed in accordance with the Application for an *ECA* for an upgraded Waste Transfer Station at Round Lake Landfill Site for the Corporation of the Township of Killaloe, Hagarty and Richards dated January 31, 2012, and the supporting documentation, plans and specifications listed in Schedule "A".

4.2 The *Owner* shall limit transfer activities to the receiving and transferring of solid, non-hazardous, residential and *IC&I* waste, *Blue Box Recyclables* (commingled containers and mixed fibres only), and SSO, generated within the Township of Killaloe, Hagarty and Richards, as described in Item15 of Schedule "A".

4.3 The *Owner* shall ensure that all waste accepted for transfer shall be segregated either into bins with lids or doors, or in designated areas as defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

4.4 The *Owner* shall ensure that each day on which the *Site* is open to accept waste for transfer, the Site is inspected and litter is picked up in the waste transfer area.

Waste Quantity

4.5 The maximum storage capacity for the *Waste Transfer Facility* and for each type of material is as follows:

Material	Total Volume (m^3)
Blue Box Recyclable – Commingled Containers	70
Blue Box Recyclable – Mixed Fibres	70
Residential and IC&I Waste	20
SSO	2
TOTAL	**162**

Operations

4.6 Recycling activities shall be completed as per *Ontario Regulation 101/94*.

4.7 Recyclable materials shall be properly separated and each area properly identified. The areas shall be kept in a neat and tidy manner.

4.8 The operating hours of the *Waste Transfer Facility* shall in as those in *Condition 2.7* in this *ECA*.

4.9 All waste types shall be segregated either into bins with locks and doors, or in designated areas defined by barriers. All bins and designated waste storage areas shall be clearly labelled.

4.10 No waste shall be received at the *Waste Transfer Station*except during operating hours when the *Waste Transfer Station* is under the supervision of the trained personnel.

4.11 (1) The *Owner* shall remove household waste at an interval at the end of the operating day.

(2) *Residential and IC&I Waste*to be collected at the transfer station in a mobile (non-compacting) waste truck with

capacity of 20 m³ and transferred to the Killaloe Waste Disposal Site for compaction.

Organic Depot Program

4.12 The organic depot program at the *Site* shall consist of the on-*Site* collection and transfer of organic waste that is stored in a maximum of two (2) specialized MOLOK containers with a total storage capacity of 1.6 cubic meters in accordance with the specifications and location on Item 14 in Schedule "A".

4.13 (1) The *Owner* shall ensure that containers used to store organic waste are leakproof, lockable and bear resistant;

(2) The *Owner* shall monitor the containers in which organic waste is stored for:

i. decomposition to ensure that the organic waste has not decomposed to the point where it is unacceptable for the intended receiving facility; and
ii. odours; and

(3) The *Owner* shall empty the containers used to store organic waste and transfer the organic waste from the *Site* forthwith when:

i. the maximum capacity approved in Condition 4.5 has been reached; or
ii. the organic waste has decomposed to the point where it is unacceptable to the original intended receiving facility; or
iii. the organic waste is creating odours that are causing off-*Site* impacts and/or negative impact to Site users.

5.0 TRAINING

Employees and Training

5.1 A training plan for all employees that operate any aspect of the site shall be developed and implemented by the *Operator.* Only trained employees shall operate any aspect of the *Site* or carry out any activity required under this *ECA*. For the purpose of this *ECA* "trained" means knowledgeable either through instruction or practice in:

i. the relevant waste management legislation *including EPA, O. Reg. 347*, regulations and guidelines;
ii. major environmental *and occupational health and safety* concerns pertaining to the waste to be handled;
iii. the proper handling of wastes;
iv. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
v. the emergency response procedures;
vi. the specific written procedures for the control of nuisance conditions;
vii. the *terms, conditions and operating* requirements of this *ECA* and,
viii. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

6.0 INSPECTIONS AND RECORD KEEPING

Daily Inspections and Log Book

6.1 An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that the site is being operated in compliance with this *ECA*. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed.

6.2 A record of the inspections shall be kept in a daily log book *or a dedicated electronic file* that includes:

i. the name and signature of person that conducted the inspection;
ii. the date and time of the inspection;
iii. the list of any deficiencies discovered;
iv. the recommendations for remedial action; and
v. the date, time and description of actions taken.

6.3 A record shall be kept in the daily log book of all the following:

i. the type, date and time of arrival, hauler, and estimated quantity (i.e. cubic metres) of all waste received at the *Site*; and,
ii. a list of the refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Site Inspections

6.4 During *Site* operations, the *Owner* shall inspect the *Site* monthly for the following items but not limited to these items:

i. General settlement areas or depressions on the waste mound;
ii. Shear and tension cracks on the waste mound;
iii. Condition of surface water drainage works;
iv. Erosion and sedimentation in surface water drainage system;
v. Presence of any ponded water on the waste mound;
vi. Evidence of vegetative stress, distressed poplars or side slope plantings on or adjacent to the waste mound; and
vii. Condition of fence surrounding the *Site.*

6.5 The *Owner* shall inspect the waste mound and surrounding areas weekly for presence of leachate seeps. Any leachate seeps that are discovered shall be repaired within 48 hours of notice by the *Owner*.

Record Retention

6.6 Except as authorized in writing by the *Director*, all records required by this *ECA* shall be retained at the *Site* for a minimum of two (2) years from their date of creation.

6.7 The *Owner* shall retain all documentation listed in Schedule "A" for as long as this *ECA* is valid.

6.8 All monthly summary reports are to be kept at the *Site* until they are included in the Annual Report.

6.9 The *Owner* shall retain employee training records as long as the employee is working at the *Site*.

6.10 The *Owner* shall make all of the above documents available for inspection upon request of *Ministry* staff.

7.0 MONITORING

Groundwater Monitors

7.1 The *Owner* shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.

7.2 In areas where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and they shall be properly re-secured.

7.3 All groundwater monitoring wells whether included in the monitoring program or not shall be assessed, repaired, replaced or decommissioned as required. Any well being decommissioned shall be decommissioned in accordance with good standard practice that will prevent contamination through the abandoned well and in accordance with Ontario Regulation 903.

7.4 The *Owner* shall repair or replace any monitoring well included in the monitoring program which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.

7.5 Any monitoring well included in the monitoring program that is no longer required as part of the groundwater monitoring program may be decommissioned provided its removal from the monitoring program has been approved by the *Director*. A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Programs

7.6. The *Owner* shall conduct the environmental monitoring program at the frequencies and for the parameters specified in Schedule "B", as modified by the *District Manage*r. By March 31 on an annual basis, the *Owner* shall submit to the *District Manager*, an Annual Report that contains the following, for the previous calendar year:

(a) the analytical results of the sampling program;
(b) an analysis of the results of the monitoring programs conducted at the *Site* to date;
(c) recommendations for any alterations to the monitoring or operation of the *Site*;
(e) an estimate of the total amount of waste lanfilled and an estimate of the *Site*'s remaining capacity;
(f) a statement as to compliance with the terms and conditions of the *ECA*;
(g) a summary of complaints regarding the operation on the *Site* and the *Owner*'s response to those complaints; and
(h) an assessment of the need to develop and implement contingency plans for leachate control

7.7 (1) For any changes to the monitoring program, the *Owner* shall in a cover letter request the acceptance of the changes by the *District Manager*.

(2) Within fourteen (14) days of receiving the writing correspondence from the *District Manager* confirming that the *District Manager* is in agreement with the proposed changes to the monitoring program, the *Owner* shall forward a letter identifying the proposed changes and a copy of the correspondences from the *District Manager*, to the *Director* requesting the *ECA* be amended to approve the proposed changes prior to implementation.

Compliance Criteria

7.8 The *Owner* shall ensure the *Site* is in compliance with MOE Guideline B-7 Reasonable Use Concept is applied and met at all points on the property line which are impacted by leachate from the *Site*.

8.0 TRIGGER MECHANISMS AND CONTINGENCY PLANS

Trigger Mechanisms

8.1 In the event of a confirmed exceedance of a *Site*-specific trigger level for groundwater impacts due to leachate or gas levels, the *Owner* shall complete the following:

i. immediately notify the *District Manager*; and
ii. 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 described in the Schedule "C"

Contingency Plans

8.2 By **June 30, 2013**, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager*, details of a contingency plan to be implemented in the event that the surface water or groundwater quality or landfill gas exceeds the a trigger mechanism.

8.3 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 *Director* and *District Manager*, in writing, of the need to implement contingency measures, no later than 30 days after confirmation of the exceedances;

(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 *Director* and *District Manager* for approval within 90 days after confirmation of the exceedances; and

(c) The contingency measures shall be implemented by the *Owner* upon approval by the *Director*.

8.4 The *Owner* shall ensure that any proposed changes to the *Site*-specific trigger levels for leachate impacts to the groundwater shall be approved in advance by the *Director* prior to implementation.

9.0 COMPLAINTS PROCEDURE

9.1 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 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. A copy of the report shall be retained on-site.

9.2 The *Owner* shall post site complaints procedure at site entrance along with the name and phone number of a suitable, local contact to receive complaints or questions related to the *Site*. All complaints and the *Owner*'s actions taken to remedy the complaints must be summarized in the Annual Report.

10.0 EMERGENCY SITUATIONS

10.1 In the event of a fire or discharge of a contaminant to the environment, *Site* staff shall contact the *MOE* Spills Action Centre (1-800-268-6060) and the *District Office* of the *MOE*.

10.2 The *Owner* shall submit to the *District Manager* a written report within 3 days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the Site.

10.3 The *Owner* shall prepare an Emergency Response Manual for the *Site* and submit to the *District Manager* within 60 days of the issuance of this amendment, in consultation with local emergency response agencies. The Emergency Response Manual should indicate the responsibility of each of the stakeholders with respect to handling possible emergency situations.

10.4 The Emergency Response Manual shall be updated on a regular basis and be provided to the *District Manager* within one month of the revision date.

10.5 The *Owner* shall ensure that adequate fire fighting and contingency spill clean up equipment is available and that emergency response personnel are familiar with its use and location.

11.0 ANNUAL REPORTING

11.1 A written report on the development, operation, monitoring and closure of the *Site*, shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *Regional Director* and the *District Manager* by **March 31st** of each year and shall cover the year ending the preceding December 31st.

11.2 The Annual Report shall include the following:

i. the results and an interpretive analysis of the results of environmental monitoring program, including an assessment of the need to amend the monitoring program;

ii. an assessment with regards to compliance of the groundwater quality at the property boundary and compliance point with regards to Guideline B-7 - Reasonable Use Concept;

iii. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the *Site*, and the adequacy of and need to implement the contingency plans;

iv. an assessment of the efficiency of the leachate management at the *Site*;

v. site plans showing the existing contours of the *Site;*

vi. areas of landfilling operation during the reporting period;

vii. areas of intended operation during the next reporting period;

viii. areas of excavation during the reporting period;

ix. the progress of final cover, vegetative cover, and any intermediate cover application;

x. previously existing site facilities;

xi. facilities installed during the reporting period;

xii. *Site* preparations and facilities planned for installation during the next reporting period;

xiii. calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the *Site* during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

xiv. a summary of the quantity of any leachate or pre-treated leachate removed from the *Site* during each operating week;

xv. a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the Site.

xvi. a summary of any complaints received and the responses made;

xvii. a discussion of any operational problems encountered at the *Site* and corrective action taken;

xviii. a summary of the amount of wastes refused for acceptance at the *Site*, the reasons for refusal and the carrier who brought the waste to the *Site*;

xix. a report on the status of all monitoring wells and a statement as to compliance with Ontario Regulation 903;

xx. any other information with respect to the site which the *District Manager or Regional Director may require from time to time;*

xxi. a statement of compliance with all conditions of this *ECA* and other relevant *Ministry* groundwater and surface water requirements;

xxii. a confirmation that the site inspection program as required by this *ECA* has been complied with by the *Owner*;

xxiii. any changes in operations, equipment or procedures employed at the *Site*; and

xxiv. recommendations regarding any proposed changes in operations of the *Site*.

12.0 SITE CLOSURE

12.1 At least two (2) year prior to the anticipated date of closure of this *Site* or the date 90 per cent of the total waste disposal volume is reached, whichever occurs first, 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.

SCHEDULE "A"

1. Application to amend a Certificate of Approval for a Waste Disposal Site, dated September 21, 1998 and signed by Janice Bush, Reeve, Township of Hagarty & Richards.

2. Document entitled “Design and Operations Report for the Round Lake Landfill Site, Provisional Certificate of Approval A412303”, dated September 1998 and prepared by The Greer Galloway Group Inc.

3. Document entitled “Revised report on Round lake Landfill, Hydrogeology”, dated September 1998 and prepared by Golder Associates Ltd.

4. Letter from I.. Parrot, MOE to K. Mooder, The Greer Galloway Group Inc., dated July 8, 1999 re: Ministry Review Comments.

5. Letter from K. Mooder, The Greer Galloway Group Inc. to I. Parrot, MOE, dated November 9, 1999 re: Response to Ministry Review Comments dated July 8, 1999.

6. Letter from B.J. Velderman, Golder Associates Ltd. to I. Parrot, MOE, dated March 15, 2000 re: Modified Surface Water Monitoring.

7. Application to amend a Certificate of Approval for a Waste Disposal Site, dated may 2, 2002 and signed by Janice Bush, Reeve, Township of Killaloe, Hagarty and Richards.

8. Letter from K. Mooder, Jp2g Consultants Inc. to EAAB, dated June 6, 2002 summarizing amendment requests.

9. Plan 49R-14688 and Transfer/Deed of Land for the purchase of Part Lot 27, Concession 3, being Part 1 on Reference Plan 49R-14688 and for the grant of easement of Part Lot 27, Concession 3 being Parts 2 & 3 on Reference Plan 49R-14688.

10. Letter from K. Mooder, Jp2g Consultants Inc. to EAAB, dated June 6, 2002 including Drawing No. 1 “Round Lake Landfill Site – Buffer Zone Plan”.

11. Letter from D. Bohart, Chair, Killale, Hagarty and Richards Waste Management Committee, to EAAB, dated February 24, 2003 providing details of the waste transfer activities which take place at Round Lake waste disposal site.

12. Letter from B.J. Velderman, Golder Associates Ltd. to EAAB, dated February 27, 2003 providing clarification of Schedule “B” monitoring program and details of the trigger mechanisms for Round Lake.

13. Fax from K. Mooder to EAAM, dated April 2003 providing a final version of Schedule "B" sampling program and Schedule "C" trigger mechanisms and remedial action plan.

14. Application for a Provisional Certificate of Approval for a Waste Disposal Site, dated May 6, 2009 and signed by Ms. Lorna Hudder, CMO, CAO/Clerk, The Corporation of the Township of Killaloe, Hagarty and Richards, including: the cover letter dated May 22, 2009 from Heather Merritt, CEPIT, to Ministry, EAAB, requesting the addition of MOLOK containers at the Site, and including a site plan and information on the MOLOK containers.

15. Application for amendment to Environmental Compliance Approval for a Waste Disposal Site (landfill/transfer) and supporting documentation, dated January 31, 2012 and signed by Dan Hagan, B.Sc., Project Geologist at Greenview Environmental Management on behalf of the Township of Killaloe, Hagarty and Richards, and dated January 31, 2012 requesting approval for an updated Development and Operations Plan to reflect additional capacity. The supporting documentation included the following:

> i. Report entitled "Design and Operations Plan - Municipal Solid Waste Transfer Station for Round Lake Waste Disposal Site (A412303)", prepared for the Township of Killaloe, Hagarty and Richards by Greenview Environmental Management Limited (File No. 107.12.005), and dated January 31, 2012.

SCHEDULE "B"

	Sampling Location	Parameters	Sampling Frequency
Background And Surveillance	BH-1, BH-2S, BH-2D, BH-5, BH-8, BH95-9, BH01-12D, BH01-13S, BH01-13D, BH01-14, R1 (Residential) and 1 QA/QC duplicate	pH, temperature, conductivity, chloride, hardness, sodium, iron, manganese, alkalinity, nitrate, total dissolved solids, barium, boron, chromium, ammonia, calcium, magnesium, potassium, aluminium, cobalt, copper, total phosphorous, silicon, strontium, sulphate, zinc, TKN, COD, DOC	Biannually in the spring (May/June) and fall (September/October)
Routine	BH-6, BH95-10, BH01-15, 1 QA/QC duplicate	pH, temperature, conductivity, chloride, hardness, sodium, iron, manganese, alkalinity, barium, boron, chromium, sulphate, nitrate, DOC, TDS	Annually in the fall (September/October)
Volatile Organic Compounds	BH-1, BH-2S, BH-2D, BH-5, BH95-9, BH01-14, trip blank, Field blank, 1 QA/QC duplicate	Parameters included in US Environmental Protection Agency 624 list	At least once every five year. Completed in the fall (September/ October).

Water Levels	BH-1, BH-2S, BH-2D, BH-3, BH-4, BH-5, BH-6, BH-7, BH-8, BH95-9, BH95-10, BH95-11, BH01-12D, BH01-13S, BH01-13D, BH01-14, BH01-15	Water levels	Biannually in the spring (May/June) and fall (September/October)

SCHEDULE "C"

Section A: Trigger Mechanism for Round Lake Landfill

The objective of the groundwater trigger mechanism at the Round Lake landfill Site is to utilize the results of the ongoing groundwater monitoring program to assess site compliance and to trigger implementation of contingency plans, when and if necessary. The purpose of the trigger mechanism is to prevent leachate-impacted groundwater exceeding MOE Guideline B-7 from migrating beyond the site boundaries. For the purpose of the trigger mechanism, the following shall apply:

The *Leachate Indicator Parameters* for the Round Lake Landfill include: alkalinity, barium, boron, calcium, chloride, chromium, conductivity, hardness and total dissolved solids (TDS).

The *Compliance Evaluation Parameters* for Round lake Landfill are barium, boron, chloride, chromium and volatile organic compounds.

The *Reasonable Use Performance Objective (RUPO)* refers to the maximum allowable concentration for a *Compliance Evaluation Parameter* in groundwater at the point of compliance under MOE Guideline B-7.

The *Trigger Concentration* for Round lake Landfill shall be over 75 percent of the *Reasonable Use Performance Objective* for the *Compliance Evaluation Parameters* at monitors BH-8, BH95-9, BH01-13D and BH01-14.

Any observed exceedance of the *Trigger Concentration(s)* will be verified by re-sampling for the parameter(s) of concern within one month of the original sampling session at which non-compliance with the trigger was initially measured. If the exceedance is not confirmed by the follow-up sample (Special Monitoring Session), then the initial exceedance will be considered anomalous and will be discounted. The historical trends in the groundwater quality at the trigger location shall also be used in concluding that monitoring results are anomalous.

Concurrent with the Special Monitoring Session will be the initiation of a three-step process for the purpose of determining whether implementation of an additional investigation program and/or the remedial action plan is warranted. The three-step process would be as follows:

Step 1: assess whether or not non-compliance with the applicable *Trigger Concentrations* is likely due to migration of the landfill leachate plume as a whole, or whether it is partially or wholly explicable by other factors. This will be achieved by considering trends in parameter concentrations at all relevant monitoring locations;

Step 2: discussion of the results of Step 1 among the Township, consultanta and the MOE to decide whether implementation of an additional investigation program and/or the remedial action plan is warranted; and

Step 3: if the conclusion of Step 2 is affirmative, then the additional investigation program and/or remedial action plan would be formulated and would be implemented.

Remedial action, as presented in Section B, shall be implemented when the *Trigger Concentration* at one monitoring location for two (2) parameters has been met or exceeded during two (2) consecutive monitoring sessions.

Section B: Remedial Action Plan

Under MOE Guideline B-7, the Owner of a waste site is responsible for preventing unacceptable off-property groundwater

impacts. Should the ongoing groundwater monitoring program define the existence of, or potential for, unacceptable impacts, the Owner shall prepare and present a Remedial Action Plan for the approval of the Director or the District manager.
Actions taken by the Township to prevent or remediate the off-property impacts shall consist of:
(a) acquisition of additional land to obtain compliance with Guideline B-7; or
(b) gaining control over the migration of the contaminated groundwater; or
(c) gaining control over the migration of the contaminants.

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

1. *The reason for Condition 1.1, 1.2, 1.3, 1.4 and 1.5 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.*
2. *The reason for Conditions 1.6, 1.7, 1.8, 1.12, 1.13, 1.14 and 1.15 is to clarify the legal rights and responsibilities of the Owner under this ECA.*
3. *Conditions 1.9, 1.10 and 1.11 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this ECA.*
4. *Conditions 1.16, 1.17 and 1.18 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.*
5. *The reasons for Condition 1.19 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 ECA.*
6. *The reasons for Condition 1.20 and 1.21 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.*
7. *The reason for Condition 1.22 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this ECA. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*
8. *Conditions 2.1, 3.1, 3.2, 4.1, 4.2, 4.3 and 4.4 are included in order to ensure that waste disposal, waste transfer operations at the site is undertaken in accordance with applicable Ministry of the Environment regulations and guidelines. Compliance with these regulations and guidelines will ensure that the site does not cause and adverse effect on the environment.*
9. *Conditions 2.2 and 2.3 are to ensure the Owner has a operations plans for the site that details all current operations at the site and that a copy is kept on site for the Owner, the Owner's staff and/or operator. This is to ensure the site is operating is a safe manner and the environment and human health are protected.*
10. *Condition 2.4 specifies the maximum amount of waste that may be received at the site based on the previously approved Environmental Assessment for the Site.*
11. *The reason for Conditions 2.5, 3.3 and 4.5 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.*
12. *The reasons for Conditions 2.6, 2.7, 2.8 and 2.9 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*
13. *The reason for Conditions 2.10 inclusive is to ensure that users of the Site are fully aware of important information and restrictions related to Site operations under this ECA.*
14. *The reason for Condition 2.11 are to specify site access to/from the Site 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.*
15. *The reason condition 2.12 has been included is to ensure that access roads are clear and do not pose a safety hazard to the general public.*
16. *Condition 2.13 is needed in order to make certain that the waste received at the site is in accordance with the ECA and O. Reg. 347.*
17. *Condition 2.14 is necessary in order to ensure that all waste loads are inspected and waste that is disposed of at the site is in accordance with the terms and conditions in this ECA.*
18. *The reasons for Conditions 2.15, 2.17 and 2.18 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.*
19. *The reasons for Condition 2.16 are the protection of public health and safety and minimization of the potential for*

damage to environmental control, monitoring and other works at the landfill Site. Scavenging is the uncontrolled removal of material from waste at a landfill site.

20. *The reason for Condition 2.19 is to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.*
21. *The reason for Condition 2.20 is to ensure that appropriate measures are taken in order to prevent surface water from contacting waste so as not to cause an adverse effect on the environment.*
22. *Condition 2.21 has been inserted in order to ensure that concentrations of landfill gas do not pose a hazard to human health or the environment.*
23. *The reason for Condition 3.4 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.*
24. *The reason for Condition 3.5, 3.6, 3.7, 3.8, 3.9 and 3.10 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capacity of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director.*
25. *The reason for Condition 3.11 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is 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.*
26. *The reason for Condition 3.12 is to ensure the Owner and any retained contactor uses the exact equipment for the operation and processing waste at the Site as approved in this ECA.*
27. *The reason for Condition 3.13 is to ensure impacted surface water at the site is handled in a manner that does not impact the environment or human health.*
28. *The reasons for Conditions 4.6 through 4.11 are to ensure the site operation completed in accordance with Ministry standards, and to ensure long-term protection of the health and safety of the public and the environment.*
29. *The reason for Condition 5.1 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.*
30. *The reasons for Conditions 6.1, 6.2, 6.3, 6.4 and 6.5 are to provide for the proper assessment of effectiveness and efficiency of site design and operation, their effect or relationship to any nuisance or environmental impacts, and the occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this ECA, the EPA and its regulations.*
31. *Conditions 6.1 and 6.2 are needed to ensure regular inspections of the site are conducted in order to protect the natural environment.*
32. *The reason for Conditions 6.6 through 6.10 is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this ECA (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.*
33. *The reason for Conditions 7.1 through 7.5 inclusive is to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*
34. *The reason for Conditions 7.6, 7.7 and 7.8 inclusive is to demonstrate that the landfill 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.*
35. *The reason for Conditions 8.1 through 8.4 is to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment. A leachate contingency plan is a specific requirement of Reg. 232.*
36. *The reason for Conditions 9.1 and 9.2 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*
37. *Conditions 10.1 through 10.5 are contained in the ECA to guarantee that appropriate measures are taken by the County to prevent future occurrences of spills or fires at the site and to protect public health and safety and the environment.*
38. *The reasons for Conditions 11.1 and 11.2 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.*

39. *The reason for Condition 12.1 is to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A412303 issued on May 18, 2000.

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
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) 212-6349, Fax: (416) 314-4506 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 .....

Signature
....., P.Eng.
Director
Section .....

DG/
c: District Manager, MOE Ottawa
Tyler Peters, Greenview Environmental Management

Ministry of the Environment

P.O. Box 22032
Kingston, Ontario
K7M 8S5
613/549-4000 or 1-800/267-0974
Fax: 613/548-6908

Ministère de l'Environnement

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Ontario

M E M O R A N D U M

28 August 2012

TO: Emily Tieu
Senior Environmental Officer
Ottawa District Office
Eastern Region

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

RE: 2011 Annual Report
Round Lake Landfill, Certificate of Approval # A412303
Lot 27, Concession 3, Township of Killaloe, Hagarty and Richards
(Geographic Township of Richards)
Hydrogeological Assessment

I have reviewed the "2011 Annual Report, Round Lake Waste Disposal Site (A412303), Township of Killaloe, Hagarty and Richards, County of Renfrew, Ontario" prepared by Greenview Environmental Management dated March 27, 2012 and I provide the following comments.

Summary

I offer the following conclusions and recommendations:

1. The site remains in compliance with its Certificate of Approval (C of A) which sets out a Reasonable Use groundwater trigger based on 75% of the maximum acceptable boundary concentration. Compliance evaluation parameters are barium, boron, chloride, chromium and VOCs. Compliance is achieved by the addition of a 1.33 Ha contaminant attenuation zone (CAZ) along the north and east site boundaries. Therefore the trigger mechanism for the site was not activated. Although Ministry Procedure B-7-1 acknowledges areas in Ontario that have naturally elevated levels of iron and manganese in groundwater above the Ontario Drinking Water Quality Standards (ODWQS), I am concerned about the very high levels of these parameters downgradient of the landfill which may require further extension of the CAZ or other mitigation measures. Geochemical processes beneath the landfill are likely inducing the release of iron and manganese from natural subsurface material. Future reports need to address this matter. Iron and manganese levels do not appear to be decreasing significantly with time.

2. The horizontal and vertical extent of the landfill leachate plume is generally well delineated in the overburden. No deep groundwater investigation has been undertaken at this site.

3. The migration of leachate is downward into shallow overburden where it migrates northeastward.

4. The overburden is comprised of up to 8.5 m of sand and gravel overlying Precambrian bedrock.

5. There are no surface water bodies in close proximity to the site. Sherwood Creek is located approximately 400 m north of the fill area. The leachate plume is well monitored between the fill area and Sherwood Creek. Future reports should compare groundwater quality at impacted wells located north of the fill area against the Provincial Water Quality Objectives (PWQOs). The likelihood of surfacewater impacts from landfill leachate remains low. The Surface Water Unit is reviewing this report.

6. The landfill does not meet the sampling requirements of Column 1 of Schedule 5 of the Landfill Standards, A Guideline on the Regulatory and Approval Requirements for New and Expanding Land filling Sites, May 1998. Mercury, lead, cadmium and arsenic are not being sampled. The groundwater sampling in 2011 met the requirements of its Certificate of Approval. Due to the absence of detectable VOCs, sampling can be reduced to every five years unless there is a problem. VOC sampling should continue at a leachate characterization well and at least two other monitors known to be impacted by leachate.

7. Background ground water quality samples are collected at BH-1 and BH-5. Both of these monitoring wells are located hydraulically up-gradient of the fill area. Background ground water quality is based on the median of at east five samples.

8. An assessment of landfill gas explosion has been performed.

9. One nearby well supply located 300 m east of the site is being sampled. This sampling reveals no signs of landfill leachate impact.

Certificate of Approval

The Round Lake landfill operates under C of A, A412303. The site is licensed for the use and operation of a 1.62 Ha landfilling site within a 3.5 Ha site including a 1.33 Ha contaminant attenuation zone.

Geology

The Round Lake landfill is situated on shallow overburden just east of a bedrock outcrop. Overburden consists of up to 8.5 m of sand and gravel overlying Precambrian bedrock.

Physical Hydrogeology

Some estimates have been made to help understand the physical hydrogeology of this site.

Horizontal Gradients:

Average horizontal gradients in the vicinity of the waste mound in 2009 were 0.006 and 0.014 to the north and northeast, respectively.

Vertical Gradients:

In May 2009 an upward vertical gradient of 0.034 was observed at monitoring wells BH2S and BH2D which is located at the eastern toe of the waste mound. In May 2009 an upward vertical gradient of 0.103 was observed at monitoring wells BH-01-13S and BH-01-13D which is located northeast of the waste mound.

Hydraulic Conductivities:

Not calculated.

Conceptual Model:

Leachate moves downward into the underlying sand and gravel overburden where it moves northeastward.

Background Groundwater Quality:

Background groundwater quality samples are collected at BH-1 and BH-5. Both of these monitoring wells are located hydraulically up-gradient of the fill area. Background groundwater quality is based on the median of at east five samples.

Leachate Water Quality

There is no true leachate characterization well located in the waste mound however there are several monitoring wells located at the toe of the waste mound. BH-2S and BH-2D are used to characterize landfill leachate. Dissolved organic carbon, aluminum, iron, manganese and pH exceeded the ODWQS in 2009 at this location.

Downgradient Water Quality

A weak leachate plume continues to impact the shallow overburden groundwater northeast of the waste mound, however elevated levels of iron and manganese exists above the ODWQS. The relationship between the leachate indicator parameters and elevated iron and manganese levels needs to be more fully evaluated in future reports.

Surface Water/Groundwater Interactions

There is no surface water in close proximity to the site.

Guideline B-7

The site complies with the Reasonable Use criteria (RUC) groundwater trigger set out in the C of A for this site but iron and manganese levels exceed ODWQS at BH 95-9 which is located at the CAZ boundary. This situation must be evaluated.

Groundwater Monitoring Program

In my last memorandum, I suggested the groundwater monitoring program should be enhanced by adding mercury, lead, cadmium and arsenic to background and surveillance groundwater monitors. Some sampling was conducted in 2007 for these parameters at key locations. Based on the results of this sampling which indicate that only trace and/or background levels of these contaminants exist in leachate impacted groundwater, I agree with the consultant to discontinue routine sampling of these parameters.

*"**Original Signed By**"*

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

c: File GW 03 03, KHRI, Round Lake Landfill
Bob Holland

APPENDIX C

Field Sampling Records

Greenview
ENVIRONMENTAL MANAGEMENT

FIELD SAMPLING RECORD - GROUND WATER

LOCATION: Round Lake Waste Disposal Site

DATE: April 26, 2012

SAMPLED BY: E. Drost, J. Douglas

PROJECT NO.: 107.12.003

WEATHER (SAMPLE DAY): Cloudy, 12°c

WEATHER (PREVIOUS DAY): Sunny, 10°C

Monitoring Location	Static Water Level	Borehole Depth (m)	Stick - Up (m)	Borehole Diameter (mm)	Purge Volumes (L)		Temperature (°C)	pH (units)	Conductivity (mS)	Dissolved Oxygen (mg/L)	Observations				Comments
					Needed	Obtained					Colour	Clarity	Odour	Sheen	
BH-1	1.38	3.80	0.65	38.1	7	7	4.66	5.95	30	8.36	yellow	clear	none	none	
BH-2S	3.05	4.81	0.83	50.8	11	11	9.38	6.22	215	6.34	clear	clear	none	none	
BH-2D	2.75	5.99	0.49	38.1	14	14	8.96	6.39	302	5.40	brown	opaque	none	none	GW QA/QC
BH-3	2.86	6.25	0.39	38.1	-	-	-	-	-	-	-	-	-	-	
BH-4	1.32	4.42	0.20	38.1	-	-	-	-	-	-	-	-	-	-	
BH-5	1.25	2.38	0.52	38.1	3	3	5.84	6.94	58	10.01	brown	opaque	none	none	
BH-6	2.72	5.01	0.71	38.1	-	-	-	-	-	-	-	-	-	-	
BH-7	3.81	5.94	0.29	38.1	-	-	-	-	-	-	-	-	-	-	
BH-8	2.31	5.72	0.57	38.1	10	10	6.78	6.49	305	5.73	yellow	opaque	sulphur	none	
BH95-9	2.43	4.98	0.45	38.1	8	8	6.76	6.47	115	6.59	yellow	opaque	none	none	
BH95-10	4.09	5.96	0.52	38.1	-	-	-	-	-	-	-	-	-	-	
BH95-11	2.32	4.92	0.33	38.1	-	-	-	-	-	-	-	-	-	-	
BH01-12D	2.40	5.60	0.38	38.1	19	19	6.44	6.18	47	5.28	brown	opaque	none	none	
BH01-13S	2.47	2.65	0.72	38.1	1	1	5.39	6.56	70	12.01	yellow	opaque	none	none	
BH01-13D	2.36	4.38	0.63	50.8	12	12	6.16	6.47	155	6.83	yellow	opaque	none	none	
BH01-14	2.07	7.45	0.32	50.8	32	32	7.26	6.51	132	6.08	grey	opaque	none	none	
BH01-15	5.46	6.09	0.69	50.8	-	-	-	-	-	-	-	-	-	-	
R1	-	-	-	-	-	-	13.03	6.58	56	4.12	clear	clear	none	none	Residential

Greenview
ENVIRONMENTAL MANAGEMENT

FIELD SAMPLING RECORD - GROUND WATER

LOCATION: Round Lake Waste Disposal Site

DATE: October 25, 2012

SAMPLED BY: E. Drost, S. Thornton

PROJECT NO.: 107.12.003

WEATHER (SAMPLE DAY): Cloudy, 15°c

WEATHER (PREVIOUS DAY): Cloudy, 5 - 8°C

Monitoring Location	Static Water Level	Borehole Depth (m)	Stick - Up (m)	Borehole Diameter (mm)	Purge Volumes (L)		Temperature (°C)	pH (units)	Conductivity (mS)	Dissolved Oxygen (mg/L)	Observations				Comments
					Needed	Obtained					Colour	Clarity	Odour	Sheen	
BH-1	2.38	2.89	-	38.1	1.50	1.00	9.76	6.15	48	10.66	yellow	cloudy	-	-	Pumped Dry
BH-2S	-	3.82	-	50.8	-	-	-	-	-	-	-	-	-	-	Dry Well
BH-2D	3.70	6.04	-	38.1	7.02	7.02	10.59	6.64	271	4.50	grey	opaque	-	-	QA/QC
BH-3	4.59	6.26	-	38.1	-	-	-	-	-	-	-	-	-	-	WL Only
BH-4	2.28	2.44	-	38.1	-	-	-	-	-	-	-	-	-	-	WL Only
BH-5	2.27	2.45	-	50.8	1.08	-	-	-	-	-	-	-	-	-	Insufficient to Sample
BH-6	3.70	5.09	-	38.1	4.17	4.17	10.97	6.46	38	8.20	yellow	cloudy	-	-	QA/QC
BH-7	4.77	5.96	-	50.8	-	-	-	-	-	-	-	-	-	-	WL Only
BH-8	3.06	5.72	-	38.1	7.98	7.98	10.24	6.37	322	8.99	yellow	opaque	sulpher	-	
BH95-9	3.10	5.00	-	38.1	5.70	5.70	9.95	6.72	162	6.22	brown	opaque	-	-	
BH95-10	4.98	5.78	-	38.1	2.40	2.40	6.33	6.54	119	9.30	yellow	clear	-	-	
BH95-11	3.52	4.89	-	38.1	-	-	-	-	-	-	-	-	-	-	WL Only
BH01-12D	4.38	5.66	-	38.1	3.84	3.84	9.84	6.30	52	5.56	brown	opaque	-	-	
BH01-13S	-	2.73	-	50.8	-	-	-	-	-	-	-	-	-	-	Dry Well
BH01-13D	3.04	4.40	-	50.8	8.16	8.16	9.41	6.36	181	2.87	brown	opaque	-	-	
BH01-14	2.82	7.47	-	50.8	27.90	27.90	8.55	6.48	149	5.49	grey	opaque	-	-	
BH01-15	-	6.11	-	-	-	-	-	-	-	-	-	-	-	-	Dry Well
R1	-	-	-	-	-	-	16.35	6.92	61	7.30	clear	clear	-	-	

APPENDIX D

Borehole Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-1
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 14, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	98.047 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0			topsoil and sand	above ground casing with locking cap; bentonite clay
2			yellow brown coarse sand, bedded	38 mm dia. PVC riser; silica sand
4			brown gravel, pebbles and coarse sand	38 mm dia. PVC screen; silica sand and native sand
6			end borehole - inferred refusal on bedrock	
8				
10				
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.: 95-210	Borehole No.: BH-2-1 (bi-level)
Client: Tp. Hagarty & Richards	Date Completed: DECEMBER 14, 1994
Location: Round Lake Center	Drilling Method: Hollow Stem Auger
Ground Surface Elevation: 99.246 m	Drill Supervisor: B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown fine sand, bedded	bentonite clay; silica sand and native sand; 38 mm dia. PVC riser; bentonite clay
4				
6			red brown gravel and coarse sand	38 mm dia. PVC screen; silica sand
8				silica sand and native sand
10			end borehole - inferred refusal on bedrock	
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-2-2 (bi-level)
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 14, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	99.246 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown fine sand, bedded	bentonite clay; 38 mm dia. PVC riser; silica sand and native sand; 38 mm dia. PVC screen; bentonite clay
4			red brown gravel and coarse sand	
6				
8				silica sand and native sand
10			end borehole - inferred refusal on bedrock	
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

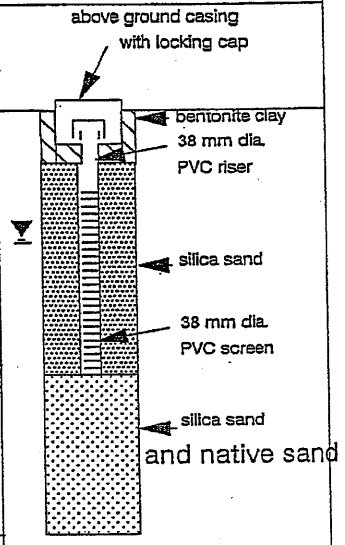
Project No.:	95-210	Borehole No.:	BH-3
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 14, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	100.235 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown medium sand, bedded	bentonite clay
4			yellow brown gravel and medium sand	38 mm dia. PVC riser
6			end borehole - quick sand	38 mm dia. PVC screen; silica sand; silica sand and native sand
8				
10				
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-4
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 15, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	98.387 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0			yellow brown medium to coarse sand with gravel	above ground casing with locking cap; bentonite clay; 38 mm dia. PVC riser; silica sand; 38 mm dia. PVC screen; silica sand and native sand
2				
4			brown dense silty sand with stones Till	
6			end borehole - refusal on bedrock	
8				
10				
12				



STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-5
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 15, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	97.953 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
			brown dense silty sand with stones	bentonite clay
			Till	38 mm dia. PVC riser
2				38 mm dia. PVC screen
			end borehole - inferred refusal on bedrock	silica sand and native sand
4				
6				
8				
10				
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

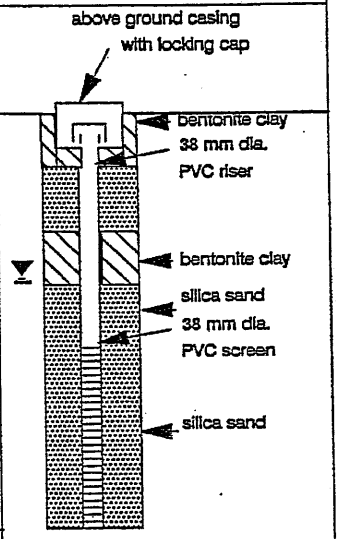
Project No.:	95-210	Borehole No.:	BH-6
Client:	Tp. Hagarty & Richards	Date Completed:	DECEMBER 15, 1994
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	99.087 m	Drill Supervisor:	B.J.V.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown medium sand, bedded	bentonite clay; 38 mm dia. PVC riser; silica sand; 38 mm dia. PVC screen; silica sand
4			end borehole- no refusal	
6				
8				
10				
12				

STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-7
Client:	Tp. Hagarty & Richards	Date Completed:	February 23, 1995
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	95.453m	Drill Supervisor:	A.W.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown medium sand, bedded	bentonite clay; 38 mm dia. PVC riser; bentonite clay; silica sand; 38 mm dia. PVC screen; silica sand
4				
6			end borehole- no refusal	
8				
10				
12				



STRATIGRAPHIC AND INSTRUMENTATION LOG

Project No.:	95-210	Borehole No.:	BH-8
Client:	Tp. Hagarty & Richards	Date Completed:	February 23, 1995
Location:	Round Lake Center	Drilling Method:	Hollow Stem Auger
Ground Surface Elevation:	94.713 m	Drill Supervisor:	A.W.

DEPTH (mBG)	SAMPLE	LOG	STRATIGRAPHIC DESCRIPTION	INSTALLATION
0				above ground casing with locking cap
2			yellow brown medium sand, bedded	bentonite clay; 38 mm dia. PVC riser; bentonite clay; silica sand; 38 mm dia. PVC screen; silica sand
4				
6			end borehole- no refusal	
8				
10				
12				

APPENDIX E

Laboratory Certificates of Analysis

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Sunday, May 13, 2012

Greenview Environmental Management
Attn : Tyler Peters

PO Box 100, 69 Cleak Ave., Bancroft
, K0L 1C0
Phone: 613-332-0057, Fax:613-332-1767, pdf, excel

Date Rec. : 27 April 2012
LR Report: **CA10231-APR12**
Reference: 107.12.003 Round Lake GW

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: BH-1	6: BH-2S	7: BH-2D	8: BH-5	9: BH-8	10: BH95-9	11: BH01-12D	12: BH01-13S	13: BH01-13D	14: BH01-14	15: R1	16: QA/QC Back/Surv
Sample Date & Time			26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12	26-Apr-12
Temperature Upon Receipt [°C]	---	---	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Alkalinity [mg/L as CaCO3]	01-May-12	15:40	6	140	134	41	188	35	28	393	84	50	26	153
Total Dissolved Solids [mg/L]	01-May-12	10:18	86	200	222	60	260	100	80	86	129	138	60	243
Chemical Oxygen Demand [mg/L]	01-May-12	11:15	28	14	16	< 8	33	9	< 8	< 8	11	9	< 8	33
Phosphorus (total) [mg/L]	10-May-12	07:50	0.06	< 0.03	1.30	0.22	0.12	0.37	0.53	0.42	0.99	1.74	< 0.03	1.80
Total Kjeldahl Nitrogen [as N mg/L]	04-May-12	10:38	0.5	0.7	2.4	< 0.5	3.8	< 0.5	< 0.5	< 0.5	0.5	< 0.5	< 0.5	2.3
Ammonia+Ammonium (N) [mg/L]	01-May-12	12:20	< 0.1	0.7	2.2	< 0.1	4.0	< 0.1	< 0.1	< 0.1	0.3	0.3	< 0.1	1.9
Sulphate [mg/L]	04-May-12	16:20	15	19	7.6	9.4	8.9	11	5.0	4.6	13	15	5.2	5.9
Chloride [mg/L]	04-May-12	16:20	2.0	3.2	4.4	2.9	5.6	4.1	1.8	1.4	3.6	3.3	0.4	4.6
Nitrite (as N) [mg/L]	04-May-12	11:00	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N) [mg/L]	04-May-12	11:00	< 0.05	1.36	0.44	< 0.05	0.14	< 0.05	< 0.05	1.02	< 0.05	0.27	0.06	0.05
Dissolved Organic Carbon [mg/L]	02-May-12	11:45	12.4	4.0	4.9	1.1	5.5	2.2	12.0	1.5	3.6	3.1	1.2	4.0
Hardness (dissolved) [mg/L as CaCO3]	30-Apr-12	15:35	19.8	132	127	21.1	129	67.6	19.0	28.1	88.5	73.4	27.7	134
Aluminum (dissolved) [mg/L]	01-May-12	09:38	0.385	0.0118	0.245	0.125	0.0867	0.0515	0.179	0.206	0.102	0.263	0.0094	0.290
Barium (dissolved) [mg/L]	01-May-12	09:38	0.0135	0.108	0.149	0.0165	0.181	0.0280	0.0153	0.0116	0.0644	0.0492	0.0142	0.148
Boron (dissolved) [mg/L]	01-May-12	09:38	0.0040	0.105	0.0790	0.0049	0.0926	0.0303	0.0055	0.0190	0.0468	0.0313	0.0054	0.0733
Calcium (dissolved) [mg/L]	30-Apr-12	15:35	4.88	39.3	35.9	5.20	37.1	15.0	4.67	7.16	22.0	16.8	7.33	37.7
Cobalt (dissolved) [mg/L]	01-May-12	09:38	0.00254	0.00242	0.0112	0.00152	0.00508	0.00725	0.00765	0.00129	0.00276	0.00664	0.000072	0.00217
Chromium (dissolved) [mg/L]	01-May-12	09:38	0.0017	0.0009	0.0028	< 0.0005	0.0028	< 0.0005	0.0028	< 0.0005	0.0010	0.0010	< 0.0005	0.0028
Copper (dissolved) [mg/L]	01-May-12	09:38	0.0055	0.0023	0.0023	0.0010	0.0041	0.0010	0.0028	0.0013	0.0025	0.0035	0.125	0.0035
Iron (dissolved) [mg/L]	30-Apr-12	15:35	0.560	0.481	34.0	0.523	23.5	5.26	8.90	0.316	7.54	6.57	< 0.003	39.4
Potassium (dissolved) [mg/L]	30-Apr-12	15:35	0.503	13.3	11.0	1.25	17.1	2.18	1.22	2.16	4.80	3.17	1.17	11.4

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Test method information available upon request. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA10231-APR12**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: BH-1	6: BH-2S	7: BH-2D	8: BH-5	9: BH-8	10: BH95-9	11: BH01-12D	12: BH01-13S	13: BH01-13D	14: BH01-14	15: R1	16: QA/QC Back/Surv
Magnesium (dissolved) [mg/L]	30-Apr-12	15:35	1.86	8.23	9.03	1.98	8.82	7.36	1.79	2.47	8.19	7.63	2.29	9.62
Manganese (dissolved) [mg/L]	01-May-12	09:38	0.0300	0.518	2.67	0.219	4.36	0.171	0.0805	0.0116	1.28	0.326	0.00606	2.37
Sodium (dissolved) [mg/L]	30-Apr-12	15:36	2.26	6.60	9.03	1.85	10.1	3.84	1.88	3.04	5.42	3.55	1.38	10.4
Silicon (dissolved) [mg/L]	30-Apr-12	15:36	8.34	9.90	17.4	5.89	16.2	10.1	9.68	5.49	11.5	10.8	6.58	18.3
Strontium (dissolved) [mg/L]	30-Apr-12	15:36	0.0259	0.201	0.244	0.0330	0.278	0.0828	0.0278	0.0422	0.138	0.0955	0.0449	0.261
Zinc (dissolved) [mg/L]	01-May-12	16:22	0.004	0.004	0.003	0.004	0.003	0.002	0.003	0.006	0.004	< 0.002	0.008	0.004

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

OnLine LIMS

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Test method information available upon request. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

November-14-12

Greenview Environmental Management
Attn : Tyler Peters

PO Box100
Bancroft, ON
K0L 1C0,

Phone: 613-332-0057
Fax:613-332-1767

Date Rec. : 27 October 2012
LR Report: **CA10340-OCT12**
Reference: 107.11.003 Round Lake GW

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: BH-1	6: BH-2D	7: BH-8	8: BH95-9	9: BH01-12D	10: BH01-13D
Sample Date & Time			25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12
Temperature Upon Receipt [°C]	---	---	6.0	6.0	6.0	6.0	6.0	6.0
Alkalinity [mg/L as CaCO3]	01-Nov-12	13:44	6	126	162	82	11	81
Total Dissolved Solids [mg/L]	31-Oct-12	08:14	97	220	231	143	86	157
Chemical Oxygen Demand [mg/L]	01-Nov-12	12:12	45	41	40	10	22	27
Total Kjeldahl Nitrogen [as N mg/L]	30-Oct-12	10:35	0.6	2.2	3.4	< 0.5	< 0.5	< 0.5
Ammonia+Ammonium (N) [mg/L]	01-Nov-12	07:36	< 0.1	1.8	3.4	< 0.1	< 0.1	0.3
Sulphate [mg/L]	05-Nov-12	15:55	12	10	8.1	17	5.6	16
Chloride [mg/L]	06-Nov-12	14:52	1.5	3.9	4.4	5.1	1.2	4.3
Nitrite (as N) [mg/L]	05-Nov-12	12:15	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Nitrate (as N) [mg/L]	05-Nov-12	12:15	< 0.05	< 0.05	< 0.05	0.19	< 0.05	< 0.05
Dissolved Organic Carbon [mg/L]	31-Oct-12	08:53	13.1	5.3	5.2	2.1	5.2	3.3
Hardness (dissolved) [mg/L as CaCO3]	09-Nov-12	12:48	21.7	105	131	96.2	17.3	94.8
Aluminum (dissolved) [mg/L]	08-Nov-12	16:54	0.533	0.226	0.0673	0.0106	0.122	0.0706
Barium (dissolved) [mg/L]	07-Nov-12	14:24	0.0124	0.118	0.173	0.0360	0.0131	0.0598
Boron (dissolved) [mg/L]	08-Nov-12	16:54	0.0069	0.0669	0.103	0.0724	0.0054	0.0470
Calcium (dissolved) [mg/L]	09-Nov-12	12:48	5.21	28.8	37.7	21.6	4.13	23.0
Cobalt (dissolved) [mg/L]	07-Nov-12	14:24	0.00744	0.00928	0.0105	0.00817	0.00661	0.00621
Chromium (dissolved) [mg/L]	07-Nov-12	14:24	0.0015	0.0026	0.0030	< 0.0005	0.0016	0.0008

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SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA10340-OCT12**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: BH-1	6: BH-2D	7: BH-8	8: BH95-9	9: BH01-12D	10: BH01-13D
Copper (dissolved) [mg/L]	08-Nov-12	16:54	0.0067	0.0027	0.0030	0.0013	0.0034	0.0029
Iron (dissolved) [mg/L]	09-Nov-12	12:48	0.578	30.6	24.7	1.31	7.84	6.28
Potassium (dissolved) [mg/L]	09-Nov-12	12:48	0.608	8.82	17.3	3.84	1.28	4.78
Magnesium (dissolved) [mg/L]	09-Nov-12	12:48	2.11	7.95	9.06	10.2	1.70	9.11
Manganese (dissolved) [mg/L]	08-Nov-12	16:54	0.0522	1.99	4.51	0.182	0.0601	1.15
Sodium (dissolved) [mg/L]	09-Nov-12	12:48	2.10	8.53	11.3	7.58	2.16	5.37
Phosphorus (dissolved) [mg/L]	09-Nov-12	12:48	< 0.009	0.019	0.013	0.010	< 0.009	0.009
Silicon (dissolved) [mg/L]	09-Nov-12	12:48	9.88	16.4	18.0	8.24	9.78	11.8
Strontium (dissolved) [mg/L]	09-Nov-12	12:48	0.0300	0.206	0.292	0.119	0.0268	0.150
Zinc (dissolved) [mg/L]	09-Nov-12	12:48	0.008	0.004	0.002	< 0.002	0.002	< 0.002
Benzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Bromodichloromethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Bromoform [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Bromomethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Carbon tetrachloride [ug/L]	01-Nov-12	08:58	< 0.2	< 0.2	---	< 0.2	---	---
Chloroethane [ug/L]	01-Nov-12	08:58	< 5	< 5	---	< 5	---	---
Chloroform [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Chloromethane [ug/L]	01-Nov-12	08:58	< 5	< 5	---	< 5	---	---
Dibromochloromethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,2-Dichlorobenzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,3-Dichlorobenzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,4-Dichlorobenzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,1-Dichloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,2-Dichloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,1-Dichloroethylene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,2-Dichloropropane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
trans-1,2-Dichloroethene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
cis-1,2-Dichloroethene [ug/L]	01-Nov-12	08:58	< 0.5	0.66	---	< 0.5	---	---
cis-1,3-Dichloropropene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
trans-1,3-Dichloropropene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Ethylbenzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Ethylenedibromide [ug/L]	01-Nov-12	08:58	< 0.2	< 0.2	---	< 0.2	---	---
Dichloromethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Monochlorobenzene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---

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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA10340-OCT12**

Analysis	3: Analysis Approval Date	4: Analysis Approval Time	5: BH-1	6: BH-2D	7: BH-8	8: BH95-9	9: BH01-12D	10: BH01-13D
Styrene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,1,2,2-Tetrachloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Tetrachloroethene [µg/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Toluene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Trichloroethylene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Vinyl Chloride [ug/L]	01-Nov-12	08:58	< 0.2	< 0.2	---	< 0.2	---	---
Trichlorofluoromethane [ug/L]	01-Nov-12	08:58	< 5	< 5	---	< 5	---	---
1,1,1-Trichloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,1,2-Trichloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
Xylene (total) [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
o-xylene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
m/p-xylene [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---
1,1,1,2-Tetrachloroethane [ug/L]	01-Nov-12	08:58	< 0.5	< 0.5	---	< 0.5	---	---

Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical

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Phone: 705-652-2000 FAX: 705-652-6365

November-14-12

Greenview Environmental Management
Attn : Tyler Peters

PO Box100
Bancroft, ON
K0L 1C0,

Phone: 613-332-0057
Fax:613-332-1767

Date Rec. : 27 October 2012
LR Report: **CA10340-OCT12**
Reference: 107.11.003 Round Lake GW

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	11: BH01-14	12: R1	13: GW QA/QC Back/Surv	14: BH-6	15: BH95-10	16: GW QAQC Routine	17: GW Trip Blank	18: GW Field Blank
Sample Date & Time	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12	25-Oct-12
Temperature Upon Receipt [°C]	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Alkalinity [mg/L as CaCO3]	69	38	104	30	43	26	---	---
Total Dissolved Solids [mg/L]	143	57	214	86	114	66	---	---
Chemical Oxygen Demand [mg/L]	17	8	47	---	---	---	---	---
Total Kjeldahl Nitrogen [as N mg/L]	< 0.5	< 0.5	2.0	---	---	---	---	---
Ammonia+Ammonium (N) [mg/L]	0.2	0.1	2.0	---	---	---	---	---
Sulphate [mg/L]	15	4.3	11	2.8	11	3.4	---	---
Chloride [mg/L]	3.3	< 0.2	4.0	< 0.2	7.9	< 0.2	---	---
Nitrite (as N) [mg/L]	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	---	---
Nitrate (as N) [mg/L]	< 0.05	0.23	< 0.05	0.60	0.91	0.68	---	---
Dissolved Organic Carbon [mg/L]	2.3	< 1	4.6	< 1	< 1	< 1	---	---
Hardness (dissolved) [mg/L as CaCO3]	82.5	28.2	105	17.7	60.1	15.4	---	---
Aluminum (dissolved) [mg/L]	0.285	0.0031	0.263	---	---	---	---	---
Barium (dissolved) [mg/L]	0.0535	0.0123	0.119	0.00800	0.0158	0.00720	---	---
Boron (dissolved) [mg/L]	0.0397	0.0073	0.0594	0.0153	0.0386	0.0149	---	---
Calcium (dissolved) [mg/L]	19.0	7.90	28.9	---	---	---	---	---
Cobalt (dissolved) [mg/L]	0.00889	0.000059	0.0114	---	---	---	---	---
Chromium (dissolved) [mg/L]	0.0012	< 0.0005	0.0027	< 0.0005	< 0.0005	< 0.0005	---	---

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Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA10340-OCT12**

Analysis	11: BH01-14	12: R1	13: GW QA/QC Back/Surv	14: BH-6	15: BH95-10	16: GW QAQC Routine	17: GW Trip Blank	18: GW Field Blank
Copper (dissolved) [mg/L]	0.0061	0.166	0.0031	---	---	---	---	---
Iron (dissolved) [mg/L]	6.87	< 0.003	31.4	0.049	0.026	0.065	---	---
Potassium (dissolved) [mg/L]	3.62	1.34	8.63	---	---	---	---	---
Magnesium (dissolved) [mg/L]	8.49	2.05	8.06	---	---	---	---	---
Manganese (dissolved) [mg/L]	0.475	0.00055	1.95	0.00880	0.00179	0.00807	---	---
Sodium (dissolved) [mg/L]	4.35	1.55	8.80	4.14	5.16	4.27	---	---
Phosphorus (dissolved) [mg/L]	0.013	< 0.009	0.017	---	---	---	---	---
Silicon (dissolved) [mg/L]	11.9	7.24	16.7	---	---	---	---	---
Strontium (dissolved) [mg/L]	0.112	0.0533	0.203	---	---	---	---	---
Zinc (dissolved) [mg/L]	0.004	0.012	< 0.002	---	---	---	---	---
Benzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Bromodichloromethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Bromoform [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Bromomethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Carbon tetrachloride [ug/L]	< 0.2	---	< 0.2	---	---	---	< 0.2	< 0.2
Chloroethane [ug/L]	< 5	---	< 5	---	---	---	< 5	< 5
Chloroform [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Chloromethane [ug/L]	< 5	---	< 5	---	---	---	< 5	< 5
Dibromochloromethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,2-Dichlorobenzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,3-Dichlorobenzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,4-Dichlorobenzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,1-Dichloroethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,2-Dichloroethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,1-Dichloroethylene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,2-Dichloropropane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
trans-1,2-Dichloroethene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
cis-1,2-Dichloroethene [ug/L]	< 0.5	---	0.61	---	---	---	< 0.5	< 0.5
cis-1,3-Dichloropropene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
trans-1,3-Dichloropropene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Ethylbenzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Ethylenedibromide [ug/L]	< 0.2	---	< 0.2	---	---	---	< 0.2	< 0.2
Dichloromethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Monochlorobenzene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5

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Phone: 705-652-2000 FAX: 705-652-6365

LR Report : **CA10340-OCT12**

Analysis	11: BH01-14	12: R1	13: GW QA/QC Back/Surv	14: BH-6	15: BH95-10	16: GW QAQC Routine	17: GW Trip Blank	18: GW Field Blank
Styrene [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
Tetrachloroethene [µg/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Toluene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Trichloroethylene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Vinyl Chloride [ug/L]	< 0.2	---	< 0.2	---	---	---	< 0.2	< 0.2
Trichlorofluoromethane [ug/L]	< 5	---	< 5	---	---	---	< 5	< 5
1,1,1-Trichloroethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,1,2-Trichloroethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
Xylene (total) [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
o-xylene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
m/p-xylene [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane [ug/L]	< 0.5	---	< 0.5	---	---	---	< 0.5	< 0.5

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Environmental Services, Analytical

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APPENDIX F

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: Round Lake WDS
Location (e.g. street address, lot, concession): Lot 27, Concession III, geographic Township of Richards, Township of Killaloe, Hagarty, and Richards
GPS Location (taken within the property boundary at front gate/front entry):
North American Datum (NAD83) are 299418.0 metres (m) East, 5055794.0 m North, in Zone 18T
Municipality: Township of Killaloe, Hagarty, and Richards

Client and/or Site Owner: Township of Killaloe, Hagarty, and Richards

Monitoring Period (Year): 2012
This Monitoring Report is being submitted under the following:

- Certificate of Approval No.: A412303
- Director's Order No.: _____
- Provincial Officer's Order No.: _____
- Other: _____

Report Submission Frequency: Annual [X] Other [ ] specify : _____

The site is: active [ ] inactive [X] closed [ ]

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 [X] No [ ]
If yes, provide details: Construction of permanent Blue Box recycling transfer station.

Groundwater WDS Verification:

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

Sampling and Monitoring Program Status:

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:

☒ Yes ☐ No

If no, list exceptions:

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):

☒ Yes ☐ No ☐ Not applicable

If no, list exceptions below or attach information.

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

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.

☐ Yes ☒ No ☐ Not applicable

b) If yes, 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:

☐ Yes ☐ No ☐ Not applicable

If no, list exceptions 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):

☒ Yes ☐ No

If no, specify:

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

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.

☒ Yes ☐ No

If no, the potential design and operational concerns/exceptions are as follows:

6) The site meets compliance and assessment criteria.

☒ Yes ☐ No

If no, list and explain exceptions

See report

7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.

☒ Yes ☐ No

If no, list exceptions and explain reason for increase/change.

8) Is one or more of the following risk reduction practices in place at the site:

(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
(b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or
(c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):
   i. The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and
   ii. Seasonal and annual water levels and water quality fluctuations are well understood.

[X] Yes Note which practice(s): (a) [ ] b) [X] c) [X]
[ ] No

9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):

[ ] Yes [X] No [ ] Not applicable

If yes, list value(s) that are/have been exceeded and follow-up action taken

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

_____

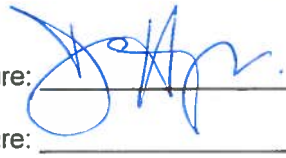
_____

Name: Tyler Peters, P.Eng. Seal:

Signature: _____ Date: _____

CEP Contact Information:
Company: Greenview Environmental Address:
Telephone No.: Fax No. : E-mail Address:
613-332-0057
tyler.peters@greenview-environmental.ca

Co-signers for additional expertise provided:

Signature:  Date: MAR 26 - 13

Signature: _____ Date: _____

APPENDIX G

Statement of Service Conditions and Limitations

GREENVIEW ENVIRONMENTAL MANAGEMENT LIMITED - STATEMENT OF SERVICE CONDITIONS AND LIMITATIONS

Provision of Services and Payment

Upon documented acceptance of Greenview's proposed services, costs and associated terms by the client, Greenview may commence work on the proposed services directly. Upon retention of Greenview's services related to this project, the client agrees to remit payment for the services rendered for the specified period within (30) days of receipt as invoiced by Greenview on a typical monthly basis, unless otherwise arranged between the client and Greenview. In the event of non-payment by the client, Greenview reserves the right, without external influence or expense, to discontinue services and retain any documentation, data, reports, or other project information until such time as payment is received by Greenview.

Warranty, Limitations, and Reliance

Greenview relies on background and historical information from the client to determine the appropriate scope of services to meet the client's objectives, in accordance with applicable legislation, guidelines, industry practices, and accepted methodologies.

Greenview provides its services under the specific terms and conditions of a specific proposal (and where necessary formal contract), in accordance with the above requirements and the *Limitations Act 2002,* only.

The hypotheses, results, conclusions, and recommendations presented in documentation authored by Greenview are founded on the information provided by the client to Greenview in preparation for the work. Facts, conditions, and circumstances discovered by Greenview during the performance of the work requested by the client are assumed by Greenview to be part of preparatory information provided by the client as part of the proposal stage of the project. Greenview assumes that, until notified or discovered otherwise, that the information provided by, or obtained by Greenview from, the client is factual, accurate, and represents a true depiction of the circumstances that exist related to the time of the work.

Greenview relies on its clients to inform Greenview if there are changes to any related information to the work. Greenview does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Greenview will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Greenview during the period that services, work, or documentation preparation was performed by Greenview.

Facts, conditions, information and circumstances may vary with time and locations and Greenview's work is based on a review of such matters as they existed at the particular time and location indicated in its documentation. No assurance is made by Greenview that the facts, conditions, information, circumstances or any underlying assumptions made by Greenview in connection with the work performed will not change after the work is completed and documentation is submitted. If any such changes occur or additional information is obtained, Greenview should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing documentation, Greenview considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Greenview is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines, and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Greenview's services, work and reports are provided solely for the exclusive use of the client which has retained the services of Greenview and to which its reports are addressed. Greenview is not responsible for the use of its services, work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Greenview without Greenview's express written consent. Any party that uses, relies on, or makes a decision based on services or work performed by Greenview or a report prepared by Greenview without Greenview's express written consent, does so at its own risk. Except as set out herein, Greenview specifically disclaims any liability or responsibility to any third party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of, reliance on or decision based on any information, recommendation or other matter arising from the services, work or reports provided by Greenview.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Greenview's work or report considers any locations or times other than those from which information, sample results and data were specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those based on extrapolations.

Only conditions, and substances, at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site that were not chosen for study by the client, or any other matter not specifically addressed in a report prepared by Greenview, are beyond the scope of the work performed by Greenview and such matters have not been investigated or addressed.

Confidentiality

Greenview provides proposals, reports, assessments, designs, and any other work for the sole party identified as the client or potential client in the case of proposals.

For proposals specifically, the information contained therein is confidential, proprietary information, and shall not be reproduced or disclosed to any other party than to that of the addressee of the original proposal submission, without prior written permission of Greenview.