FINAL

Bunker's Creek Historic Waste Sites

2025 Annual Monitoring Report

Submitted to:

City of Barrie, Environmental Risk Management and Compliance

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EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by the City of Barrie (City), to carry out the 2025 Annual Monitoring Program at Historic Waste Sites within the City of Barrie located along Bunker's and Dyment's Creeks, generally between Anne Street and Bradford Street approximately 300 to 400 metres (m) west of Kempenfelt Bay. This report describes the results of monitoring conducted between January 28 and September 3, 2025 for the four waste disposal sites referred to as Sites 1, 2, 3 and 7 along Bunker's Creek (see **Figures 1 and 2**). Sites 4, 5 and 6 (i.e., the Dyment's Historic Waste Sites) are discussed in a separate report. This work program is intended to constitute an assessment relative to the environmental influence of the landfills, notably on the quality of Bunker's Creek and adjacent soil gas methane concentrations.

The waste sites are largely continuous on both sides of Bunker's Creek (north of the creek in the western portion and south of the creek in the central and eastern portions) and are herein referred to as the "Bunker's Creek Landfills". The sites are bounded by Anne Street to the west, Bradford Street to the east, Perry Street to the north, and Vespra Street to the south. Waste was identified in the area southeast of the Vespra and Innisfil Street intersection (former Fire Hall); north of Vespra Street, the extent of waste could not be positively identified, as these portions of the sites are on private property. Limits of waste fill in these areas are largely based on historical aerial photography and mapping interpretation and have been accepted by the Ministry of Environment, Conservation and Parks (MECP).

Parameters associated with impacts to water quality from municipal solid waste typically include elevated concentrations of chloride, sodium, metals including iron, manganese and phosphorous, nitrogen compounds including ammonia and low concentrations of chlorinated volatile organic compounds (VOC) from products co-disposed in the waste. The City implements a program to monitor the environmental conditions relative to surface water quality in Bunker's and Dyment's Creek and relative to the potential for explosive levels of soil-gas (i.e., the methane in landfill gas, LFG). The Provincial Water Quality Objectives (PWQO) are used to assess surface water compliance. Standards for LFG are based on the Lower Explosive Limit (LEL) of methane in air (i.e., 5%); a concentration of 1% methane is used as an action level for monitors located outside of the waste limits.

The following scope of work was implemented for the 2025 monitoring program:

- Measurement of water levels and LFG monitoring at 19 existing gas probe/well locations (GP-B3 through GP-B14, GP-B17 through GP-B22 and GP-B24 in January (frozen ground conditions) 2025;
- Surface water quality samples were collected at the five established surface water monitoring locations (SWB1 through SWB5) on September 3, 2025; and
- Analysis of the surface water samples for major ions and indicators, metals, VOC and petroleum hydrocarbon fractions F1 to F4 (PHC F1 to F4).

The primary findings based on the 2025 monitoring program results are as follow:

- Surface water quality remains stable in comparison to historical data. Surface water is the ultimate receptor for potential groundwater impacts from the historical waste sites. Based on the results obtained as part of the 2025 sampling program, it is concluded that the historic waste sites are not adversely affecting surface water quality of Bunker's Creek; and,
- The methane concentrations measured in January 2025 at gas probes located adjacent to waste fill areas 1, 2, 3 and 7 were non-detect and are below the 1% action level at all locations. Following the abandonment of GP-B1 there is no data available for the area in the north portion of Site 1 however, historical data indicates that methane has not been present at this probe since 2012.

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1.0 INTRODUCTION

WSP Canada Inc. (WSP) was retained by the City of Barrie (City), to carry out the 2025 Annual Monitoring Program at Historic Waste Sites within the City of Barrie located along Bunker's and Dyment's Creeks, generally between Anne Street and Bradford Street approximately 300 to 400 metres (m) west of Kempenfelt Bay. This report describes the results of monitoring conducted on January 28 (landfill gas) and September 3 (surface water), 2025 at four waste disposal sites referred to as Sites 1, 2, 3 and 7 along Bunker's Creek (see **Figures 1 and 2**). Sites 4, 5 and 6 (i.e., the Dyment's Historic Waste Sites) are discussed in a separate report. This work program is intended to constitute an assessment relative to the environmental influence of the landfills, notably on the quality of Bunker's Creek and adjacent soil gas methane concentrations.

Between 2011 and 2013, Golder Associates Ltd. (Golder) conducted an assessment of nine Historical Waste Sites within the City, following the requirements of the Ministry of the Environment, Conservation, and Parks (Ministry, MECP and precursors) D-4 Studies and of the Environmental Site Assessment process. The nine sites were part of an identified list of waste sites in Ontario, developed by the Ministry on the basis of information largely collected in a 1979 study (Ministry of the Environment, 1979), supplemented with information available up to 1994 when the Ministry finalized the Waste Inventory. The locations of these waste sites were identified based on generalized street descriptions and were reported to be operated from 1956 to 1964, pre-dating the Ministry's Environmental Protection Act (1973). As these sites were largely "unorganized" (i.e., none of them were approved under a Ministry process) their exact locations and character were not known.

Following the initial studies, a total of seven waste sites were identified, four located along Bunker's Creek and three located along Dyment's Creek. These sites are located on lands currently used for parkland, residential, commercial, and industrial land use.

The areas of waste fill have been identified and impact on the environment assessed on the basis of groundwater, surface water and soil gas standards. Whereas the sites contain largely inert fill, waste materials were identified at most sampling locations; key indicators of the impact of the waste fill were identified. Previous exceedances tended to be located within or immediately adjacent to the waste fill; monitoring of landfill gas in gas probes located within waste ceased in 2019.

Parameters associated with ground and surface water impacts from municipal waste typically include elevated concentrations of chloride, sodium, metals including iron, manganese and phosphorous, nitrogen compounds including ammonia, and low concentrations of volatile organic compounds (VOC) from products co-disposed in the waste. The Provincial Water Quality Objectives (PWQO) are used to assess surface water compliance.

Standards for methane in LFG are based on the Lower Explosive Limit (LEL) of methane in air (i.e., 5%) and the MECP guidance document "*D-4-1 Assessing Methane Hazards from Landfill Sites*" (July 2021). A concentration of 1% methane is used as an action level for gas probes located outside of the waste limits.

2.0 BACKGROUND

Four of the nine waste disposal sites identified in the Ministry Waste Disposal Site Inventory within the City of Barrie are included in the Bunker's Creek area:

- Site 1 – Anne Street North and Vespra Street: Located on the northwest corner of Anne Street North and Vespra Street – closed in 1956 – Ministry Site No. X 4101;
- Site 2 – Vespra Street and Innisfil Street: Located northwest of the intersection of Vespra Street and Innisfil Street – closed in 1959 – Ministry Site No. X 4102;
- Site 3 – Vespra Street and Innisfil Street: Located on the northeast corner of Vespra Street and Innisfil Street – closed in 1960 – Ministry Site No. X 4103; and,
- Site 7 – Vespra Street and Bradford Street: Located northeast of the intersection of Innisfil Street and Vespra Street – closed in 1964 – Ministry Site No. X4107.

The findings of the earlier investigations estimated the approximate areal extent of waste fill, as illustrated on **Figure 2**. It is noted that the delineation of waste fill extent was limited to investigation of the portions of sites accessible to the City (i.e., City owned lands). Access to Site 2 was further limited due to forest cover and steep slopes in the vicinity of Milligan's Pond.

The waste fill sites are more or less continuous on both sides of Bunker's Creek (north of the creek in the western portion and south of the creek in the central and eastern portions) (and herein referred to as the "Bunker's Creek Landfills"), and are bounded by Anne Street to the west, Bradford Street to the east, Perry Street to the north, and Vespra Street to the south. In the area of the former Fire Hall property (southeast of the Vespra and Innisfil Street intersection), the available information, including previous 1996 investigations completed by others (Terraprobe, 1996), indicates that the waste extends to the north of the former building (demolished in 2013), but not to the south. It is not known whether there was waste under this building. In other areas, for example, portions of the landfill north of Vespra Street, the extent of waste could not be positively identified as these parts of the landfills are on private property. Limits of waste fill in these areas are largely based on historical aerial photography and mapping interpretation and have been accepted by the Ministry.

The material within the Bunker's Creek Landfills consists of coarse soil fill overlying thin layers of waste material. The waste encountered in the boreholes consisted largely of solid (e.g., glass, plastic, brick, metal) material and did not contain putrescible materials; however, as detectable, and in some cases, elevated methane concentrations are encountered, putrescible waste is likely present between the borehole locations (specifically within Site 7). Waste thickness typically ranges from very thin (0.05 m) at several locations to a maximum thickness of 2.59 metres (m) encountered on the south side of Bunker's Creek, east of Milligan's Pond. The maximum depth of waste extended to 7.21 m below ground surface (bgs) south of Bunker's Creek in the Boys Street easement. Cover material, consisting of topsoil and/or fill, ranged in thickness from 1.27 m to 8.33 m.

The interpreted groundwater flow direction under the waste disposal sites is consistently toward Bunker's Creek, and ultimately to the east toward Lake Simcoe. Earlier groundwater monitoring results at wells MW-B1, MW-B3, MW-B7, located at the northern limits of Sites 1 and 2, and to the east of the north portion of Site 7 indicated the waste does not impact these areas. This is consistent with the anticipated limits of the waste fill identified in the initial investigations (Golder, 2013). Based on interpreted shallow horizontal groundwater flow, it has been concluded that groundwater outside the limits of waste fill will not be impacted. Monitoring of groundwater quality ceased in 2016.

Landfill gas is generated by the decay of organic material typically contained in municipal waste and consists largely of methane and carbon dioxide. Landfill gas (as defined by the presence of elevated methane concentrations) has not migrated

significantly beyond the waste fill limits and concentrations are generally below a concentration of 1% methane. Exceptions to this include gas probes located within the waste fill areas in the central and southern portions of these landfills. As LFG concentrations within the waste remained relatively consistent between 2013 and 2018, LFG monitoring in gas probes located within waste fill was removed from the monitoring program in 2019 and a number of the monitoring wells that were installed in the waste have since been decommissioned.

3.0 SCOPE AND FIELD INVESTIGATION METHODS

3.1 Monitoring Program

The City implements a monitoring program to monitor surface water quality in Bunker's Creek and the potential for explosive concentrations of methane in the soil-gas. The 2025 monitoring program locations are listed below. Surface water samples are collected annually, in the fall.

Landfill gas monitoring is completed annually under frozen ground conditions. Monitoring of LFG at wells located within the waste fill is not required unless pertinent to assessment of specific property use. It is noted that an additional LFG sampling event was completed in 2024; not typically required.

During the 2024 monitoring program, one gas probe (GP-B1) and an adjacent monitoring well (MW-B1) were irreparably damaged as a result of a fire from a nearby encampment and could no longer be monitored. The gas probe and well were decommissioned in November 2024 and have been removed from the monitoring program.

Table 1: 2025 Sampling Locations

Landfill Gas Probes
GP-B3, GP-B7, GP-B8, GP-B14, GP-B17 through GP-B22 and GP-B24*
Surface Water Sampling Locations
SWB1, SWB2, SWB3, SWB4, SWB5

The following scope of work was implemented for the 2025 monitoring program.

- Measurement of water levels and landfill gas monitoring of 19 existing gas probe/well locations (GP-B3 through GP-B14, GP-B17 through GP-B22 and GP-B24 in January 2025 (frozen ground conditions);
- Surface water quality samples were collected at the five established surface water monitoring locations (SWB1 through SWB5) on September 3, 2025; and
- Analysis of the surface water samples for major ions and indicators, metals, VOC and petroleum hydrocarbon fractions F1 to F4 (PHC F1 to F4).

*Gas probes GP-B4, GP-B5, GP-B6, GP-B9 through GB-B13 located within the waste fill were monitored in 2025 but are not part of the regular monitoring program.

3.2 Surface Water Sampling

In 2025, five surface water samples (SWB1 through SWB5) were collected within Bunker's Creek on September 3, 2025 (see **Figure 2** for sampling locations).

In addition to the sampling locations, WSP visually assessed the conditions along the entire portion of the creek from the bank during each sampling event and no visible leachate seeps (i.e., sheen or discolouration) were noted.

Samples were collected from downstream (SWB1) to upstream (SWB5) locations to prevent cross-contamination. To prevent spillage of preservatives and to ensure collection of a representative sample, a clean, dry amber glass jar was used to collect each sample from the middle of the water column and was subsequently poured into laboratory supplied sampling containers. At the time of sampling, the surface water samples were placed in coolers with ice and subsequently submitted to the commercial analytical laboratory under chain-of-custody procedures. Each surface water sample was submitted for

laboratory analysis of VOC, metals, PHC F1 to F4, and major ions and indicators. As recommended in the 2024 AMR, PAH analysis was removed from the analytical parameters in 2025 as there have been no detections of these parameters since 2021. **Table 2** provides a summary of the measured field parameters for the surface water samples submitted- for laboratory analysis.

Table 2: Summary of Analyzed Surface Water Samples – Bunker's Creek Landfills – September 3, 2025

Sample I.D.	Location Relative to Closed Landfills	Field pH	Field Temp. (ºC)	Field Cond. (µS/cm)	ORP (mV)	Flow (L/s)
SWB1	Downstream	7.6	17.0	1500	50	36
SWB2	Sites 2, 3 and 7	7.6	17.9	1446	56	38
SWB3	Site 2	7.6	18.4	1439	8	40
SWB4	Sites 1 and 2	7.6	17.1	1485	32	29
SWB5	Upstream	7.6	16.1	1480	19	NR

Notes:
µS/cm = micro Siemens per centimetre
ORP = Oxidation-reduction potential
mV = Millivolts
NR = Not recorded

3.3 Analytical Program

WSP retained the services of SGS Canada Inc., (SGS) of Lakefield, Ontario to analyze the water quality samples. SGS is accredited by Canadian Association for Laboratory Accreditation Inc. (CALA program).

Analytical methods are reported on the laboratory Certificates of Analysis provided in **Appendix C**.

3.3.1 Quality Assurance/Quality Control

Relative Percent Difference (RPD) is calculated where results for both the original and duplicate samples are at concentrations of greater than five times the laboratory reportable detection limits (RDL). Field duplicate surface water samples with calculated RPD values greater than 50% are considered questionable.

The standard analytical methods and procedures used, as well as internal laboratory method blanks, duplicates and surrogate recoveries for organic analyses are also provided on the SGS Laboratory Certificates of Analysis provided in **Appendix C**.

The laboratory maintains in-house quality assurance/quality control (QA/QC) programs to govern sample analysis. Standard QA/QC protocols include the analysis of method blanks, matrix spikes and 10% replicates for each sample batch. In addition to the quality control employed by the laboratory, the following QA/QC samples were also submitted during the work program:

- One surface water field duplicate sample (labelled Dup B) was submitted for analysis of analyzed parameters from SW-B1 during the September 2025 surface water sampling event;
- One blind field blank sample was submitted for analysis of the analyzed parameters during the September 2025 surface water sampling event; and
- One trip blank sample was submitted for analysis of VOC and/or PHC F1 during the September 2025 surface water sampling event.

3.4 Landfill Gas Sampling

A portable high-volume pump (10 L/min) was used to purge three times the volume of each probe/well prior to sampling; the wells were outfitted with a valve and cap to prevent atmospheric influence. Readings including the relative concentrations of carbon dioxide (CO2), methane (CH4), and oxygen (O2) were obtained from the gas probes using a calibrated GEM 2000 or GEM 5000 landfill gas monitor.

Table 6 (attached) provides a full list of readings in the gas probes. **Figure 5** provides a summary of methane gas concentrations in plan-view. This figure depicts data collected during the January 2025 sampling event (frozen ground conditions).

At some locations (i.e., GP-B6, GP-B12), the screened interval above the water table is thin (greater than 90% saturated), which may result in variation of measured LFG concentrations (i.e., periods with higher water table conditions could reduce the ability of the well to accurately represent LFG concentrations).

3.5 Standards for LFG

Standards for methane in LFG are based on the Lower Explosive Limit (LEL) of methane in air (i.e., 5%). The MECP guidance document "*D-4-1 Assessing Methane Hazards from Landfill Sites*" (July 2021) indicates that where studies are available that demonstrate that methane is not present in the landfilled waste at a concentration greater than 20% LEL (i.e., 1% methane in air), it can be assumed that methane from that landfill is not present on adjacent properties at a higher concentration. Accordingly, an action level of 1% methane at wells outside of the waste is used to identify areas requiring further assessment.

3.6 Gas Probe / Well Decommissioning

The monitoring wells and gas probes located within the waste on City-owned lands, and which are no longer monitored, should be checked annually to ensure they are in good condition (e.g., the surface casing is stable and locked). The City may wish to retain these wells in some areas where sampling may be required for future studies. If these wells are to be abandoned, they should be decommissioned by a licenced water well contractor. No gas probes or monitoring wells were decommissioned in 2025.

4.0 GROUNDWATER AND SURFACE WATER RESULTS

4.1 Groundwater Elevations and Flow

A summary of groundwater elevations obtained from the monitoring wells and gas probes is provided in **Table B-1** (**Appendix B**). Groundwater elevations ranged from 218.94 m above sea level (asl) (at GP-B7) to 224.45 m asl (at GP-B20) in January 2025, which are relatively consistent with the data from previous years. Several well groundwater elevations were slightly below their respective historical range. Gas probe GP-B13 was noted to be dry for the first time within the available monitoring data (2012 to present).

Figure 3 illustrates the groundwater flow directions based on water levels obtained in January 2025. Groundwater flow is interpreted to be easterly overall but flows locally to the topographic low formed by Bunker's Creek. At Site 1, shallow groundwater flow is interpreted to be toward Bunker's Creek. Groundwater originating from the waste fill areas flows away from adjacent properties located outside the estimated waste limits. At Site 2, shallow groundwater is interpreted to be toward Milligan's Pond or Bunker's Creek in the northern portion of the Site, north of the creek and north-easterly toward Bunker's Creek to the south of the creek. Groundwater originating from within the waste fill areas would not likely impact adjacent properties outside the estimated waste limits as groundwater would flow away from these properties.

At Sites 3 and 7, shallow groundwater flow is interpreted to be largely north toward Bunker's Creek; however, in the area of Site 7, it is expected that a portion of the groundwater flows off-site to the adjacent property to the east, before discharging to Bunker's Creek near monitoring well MW-B7.

4.2 Analytical Results

Laboratory Certificates of Analysis for surface water are provided in **Appendix C**. The analytical results for surface water samples were compared to the respective PWQO for surface water and are summarized in **Tables 4 and 5,** following the text of the report.

The sampling event took place a minimum of 72 hours following a significant rainfall event to ensure the results are typical of baseflow conditions.

No leachate seeps (i.e., evidently discolored water on the stream banks) were noted during the sampling events. The analytical results for surface water samples were compared to the respective PWQO for surface water and are summarized in **Tables 4 and 5** following the text of the report.

Surface water sample locations for which the analytical results exceed the various standards used for comparison are provided on **Figure 4**. Un-ionized ammonia concentrations are shown on **Figure 4** for informational purposes, as this parameter represents a potential impact to aquatic organisms.

4.2.1 VOC, Metals, Major Ions and PHC

Surface water quality in samples collected from five locations along Bunker's Creek (see **Figure 4**) met the PWQO for the analyzed parameters, with the following exceptions:

- **Iron at sampling locations SWB1, SWB2, SWB3 and SWB4:** Iron concentrations increased moving downstream, ranging from 297 micrograms per litre (µg/L) (SWB5 – the upstream location) to 959 µg/L (SWB1 – the downstream sample location). The iron concentrations reported in 2025 were within the historical range for each sampling location and are generally higher at the downstream location.
- **Phosphorus at sampling locations SWB1, SWB2 and SWB3:** Phosphorus concentrations were slightly above the interim PWQO (0.030 milligrams per litre [mg/L]) at these three sampling locations ranging from 0.031 mg/L at SWB1 to 0.037 mg/L at SWB2. The phosphorus concentrations reported in 2025 were within historical range for each sampling location.

Total ammonia, a common indicator of municipal solid waste impact, was present at low concentrations, ranging from non-detect to 0.6 mg/L in 2025, consistent with previous results. The un-ionized ammonia proportion (indicative of potential impacts to aquatic organisms) was calculated based on field pH and temperature at the time of sampling and was below the PWQO of 0.02 mg/L in all cases. This parameter ranged from non-detect at SWB5 (upstream) to 0.007 mg/L at SWB1 (downstream).

No elevated VOC or PHC parameters were detected in 2025. PAHs are no longer analyzed within surface water at the Site.

Surface water is the ultimate receptor for groundwater discharging from the waste sites. Based on the surface water laboratory indicator results obtained as part of the 2025 monitoring program, it is concluded that the waste fill is not adversely affecting the surface water quality of Bunker's Creek relative to the PWQO.

4.2.2 Indicator Parameters

Relative comparisons can be made regarding general water quality for parameters such as electrical conductivity (1,780 micro Siemens per centimetre [µS/cm] to 1,900 µS/cm) and chloride (430 mg/L to 470 mg/L) in 2025. These parameters are generally considered to reflect run off impacted from road salting activities on nearby roadways throughout the winter.

The concentrations of the indicator parameters are generally similar in all surface water samples. This supports the conclusion that the waste fill sites are not adversely impacting the quality of Bunker's Creek relative to PWQO.

4.2.3 Quality Assurance/Quality Control

The Relative Percent Differences (RPD), where able to be calculated, for the duplicate surface water samples collected in 2025 are acceptable (<50%), with the exception of titanium which had an RPD of 59.5%. The titanium concentration for SWB1 (3.90 ug/L) and the field duplicate (7.20 ug/L) were both within historical range for this location. Titanium results from the 2025 sampling program should be treated with caution.

Concentrations of analyzed parameters in the field blank sample were less than their respective laboratory detection limits, except select low level metal and inorganic parameters (typically within 5 times the Reportable Detection Level (RDL), where variability is highest) in the field blanks prepared in 2025, which is not unexpected as the blank water is not de-ionized. Chloride was reported as 3.8 mg/L and conductivity as 18 uS/cm in the field blank, which are both more than 5 times their RDLs of 0.04 mg/L and 2 uS/cm respectively.

Concentrations of analyzed parameters in the trip blank samples were less than their respective laboratory detection limits. The laboratory indicated that they found no discrepancies or any errors in the data reported. The field sampling protocols were followed and there were no exceedances of the PWQO for these parameters. Based on the detected results, the results of the blank sample analyses are considered acceptable.

Surrogate standard recoveries outside the range, typically, of 50 to 130% are indicative of questionable results for the tested parameters. The reported surrogate recoveries were within the acceptable range.

Matrix spike recoveries outside the typical range for individual parameters are indicative of questionable results for the tested parameters. The reported matrix spike recoveries are within the acceptable range.

Based on the review of the 2025 QA/QC data, the associated analytical results are considered to be representative and reproducible.

5.0 LANDFILL GAS RESULTS

Figure 5 provides a plan-view of the highest methane gas concentrations measured in gas probes in January 2025, which was under frozen ground conditions. In some cases, the gas probe/well screens were nearly submerged (i.e., at GP-B6, GP-B12), which reduces the ability of the probe to represent accurate landfill gas concentrations.

Table 3 provides a summary of 2025 methane gas concentrations. Historical LFG monitoring results are provided on **Table 6** following the text of the report.

Table 3: Summary of 2025 Methane Concentrations – Bunker's Creek Landfills

Location	Screen Interval (mbgs)	Screen Installation Description	Date	Depth to Groundwater (mbgs)	Methane Concentration (% by volume)
Site 1					
GP-B8	0.91 – 3.93	Within the waste fill limits overlying sand	28-Jan-25	3.79	0.0
GP-B20	1.52 – 4.57	Sand	28-Jan-25	3.98	0.0
GP-B21	1.07 – 4.12	Unknown (daylighted)	28-Jan-25	Dry	0.0
GP-B22	0.76 – 3.81	Sand	28-Jan-25	2.34	0.0
GP-B24	0.80 – 2.27	Within waste fill area	28-Jan-25	1.93	0.0
Site 2					
GP-B3	0.61 – 2.13	Within the fill overlying waste	28-Jan-25	Dry	0.0
Site 3					
GP-B14	0.77 – 3.05	Sand	28-Jan-25	2.27	0.0
GP-B17	1.22 – 2.75	Sand	28-Jan-25	2.75	0.0
Site 7					
GP-B7	0.77 – 2.29	Sand, some silt and gravel	28-Jan-25	1.40	0.0
GP-B18	1.52 – 3.05	Sand	28-Jan-25	2.09	0.0
GP-B19	0.77 – 2.29	Unknown (daylighted)	28-Jan-25	1.17	0.0

Methane concentrations above the LEL of 5% in air represent a potential safety hazard at adjacent buildings, as the gas can potentially accumulate within enclosed spaces and result in conditions where open flame or a spark could cause an explosion.

As per Ministry guidance (MECP, 2021), a methane concentration of 1% is used herein as an action level to identify results which require further assessment.

Methane was not detected in the monitored probes adjacent to the waste in 2025. It is noted that there are no gas probes north of Sites 3 and 7, where lands are under private ownership; however, the presence of Bunker's Creek at this location would act as a natural barrier to LFG migration in this direction.

Methane was detected within three of the gas probes within the waste in 2025: GP-B10 (Site 1) = 13.5%; GP-B12 (Site 2) = 0.1%; and GP-B6 (Site 7) = 1.0%. However, the action level of 1% is not applicable to these locations as they are located within the waste and are not part of the regular compliance monitoring program. The methane concentrations were within the historical ranges at these locations.

6.0 DISCUSSION AND SUMMARY

6.1 Surface Water Quality

The sampling event took place a minimum of 72 hours following a significant rainfall event to ensure the results are typical of baseflow conditions.

The overall results for ammonia have not substantively changed from those of previous years. The un-ionized ammonia proportion (indicative of potential impacts to aquatic organisms) was below the PWQO of 0.02 mg/L in all cases indicating that discharge of ammonia from the landfills to the stream as baseflow is limited. The total ammonia results are consistent with historical trends, which indicate a moderate increase of ammonia at the downstream location, presumably attributable to landfill influence.

Elevated concentrations of iron above the PWQO are not considered to indicate landfill related impacts. Iron concentrations in the upstream location (SWB5) range from a maximum concentration of 1,650 ug/L in 2023 to a minimum concentration of 279 ug/L in 2024. Iron concentrations in the downstream location (SWB1) range from a maximum concentration of 2,500 ug/L in 2021 to a minimum concentration of non-detect in 2023. Concentrations of a number of metal parameters fluctuate over time however, the relative trends do not indicate an immediate issue requiring action beyond ongoing sampling and assessment described herein.

Phosphorus concentrations exceeded the PWQO at sampling locations SWB1, SWB2 and SWB3 in 2025 but remained within historical range for each location. The source of phosphorous to stormwater runoff into urban areas is reported to include atmospheric deposition, fertilizers, pet waste, automotive detergents and decay of organic material from lawn clippings and leaves[1]. The relative trends do not indicate actions required beyond ongoing sampling and assessment described herein.

Surface water is the ultimate receptor for potential groundwater impacts from the historical waste sites. Based on the surface water results obtained during this investigation during the 2025 sampling event, it is concluded that the historic waste sites are not adversely affecting surface water quality of Bunker's Creek. Whereas there are seasonal variations of a number of parameters monitored in Bunker's Creek, a number of these reflect urban runoff rather than landfill related influence. Given the historic sampling record and recent results, sampling of the creek annually in the early fall (i.e., September) is considered to be sufficient.

6.2 Off-Site Landfill Gas

Methane was not detected in the monitored probes adjacent to the waste in 2025. Following damage to GP-B1 and decommissioning in November 2024, no data is available in the north portion of Site 1. As noted below, historical information for this well indicates that methane has not been present at this probe since 2012.

Whereas continued LFG monitoring adjacent to Sites 1, 2, 3 and 7 is warranted to ensure conditions do not change, the risk posed to nearby residences from elevated methane in soil gas is not anticipated to increase over time. The waste has been in place for over 50 years and therefore LFG generation is expected to decline slowly. Monitoring of LFG in probes located within the waste is not considered necessary as sufficient historical information on the source area of methane has been collected. Provided that other controlling conditions, for example water table elevation and permeability of the soil / ground cover do not change substantively, methane concentrations are expected to be within the range of recent results. Should future

[1] Stormwater runoff driven phosphorous transport in an urban residential catchment: Implications for protecting water quality in urban watersheds by Yun-Ya Yang and Gurpal S. Toor. Published August 3, 2018 at https://www.nature.com/articles/s41598-018-29857-x

development be considered in the areas where elevated methane is present (i.e., within the waste fill area), additional investigations would be required.

6.3 Summary

The primary findings based on the 2025 monitoring program results are as follow:

- Surface water quality remains stable in comparison to historical data. Surface water is the ultimate receptor for potential groundwater impacts from the historical waste sites. Based on the results obtained during this investigation during the 2025 sampling event, it is concluded that the historic waste sites are not adversely affecting surface water quality of Bunker's Creek; and,
- Methane was not detected in the monitored probes adjacent to the waste in 2025. Following abandonment of GP-B1 there is no data available for the area in the north portion of Site 1 however, historical data indicates that methane was not present at this probe between 2012 and 2024.

7.0 REFERENCES

Golder Associates Ltd., 2013. D-4 Study and Environmental Assessment, Bunker's Creek Landfills – City of Barrie. Report prepared for the City of Barrie dated April 2013.

Ministry of Environment and Energy, 1994. *Provincial Water Quality Objectives*, dated July 1994.

Ministry of Environment, Conservation and Parks, 2021. D-4-1 Assessing Methane Hazards from Landfill Sites. Dated May 18, 2016, amended July 13, 2021.

WSP Canada Inc., 2024. Bunker's Creek Historic Waste Sites, 2024 Annual Monitoring Report. Report prepared for the City of Barrie dated December 18, 2024.

8.0 LIMITATIONS

This report was prepared for the exclusive use of the City of Barrie and has been prepared as part of environmental due diligence activities and is not intended to be utilized as supporting documentation for a Record of Site Condition under Ontario Regulation 153/04.

WSP's professional services for this assignment addressed only the geo-environmental (chemical and soil gas) aspects of the subsurface conditions at this site. The geotechnical (physical) aspects, including engineering recommendations for the design and construction of building foundations, pavements, underground servicing and the like are outside the terms of reference for this report and have not been investigated or addressed.

This report is based on data and information collected during the subsurface environmental investigations conducted by WSP and is based solely on-site conditions encountered at the time of the field work (i.e., 2025), as described in this report.

In evaluating the site, WSP has relied in good faith on information provided by others and evaluated only conditions at a limited number of test locations. Only limited chemical analyses of soil samples were carried out. It should be noted that the results of an investigation of this nature should, in no way, be construed as a warranty that the Sites are free from any and all contamination from past or current practices.

We accept no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omission, misinterpretations or fraudulent acts of the persons interviewed. WSP accepts no responsibility for any reduction in property value, either real or perceived, as a result of the reporting of factual information herein.

This assessment was carried out using existing historical information as available from various agencies and no assurance is made regarding the accuracy or completeness of this information.

If additional information is obtained during future work at the sites, including excavations, borings, or other studies, and/or if conditions exposed during construction are different from those encountered in this assessment, WSP should be requested to re-evaluate the conclusions presented in this report and provide amendments as required.

Signature Page

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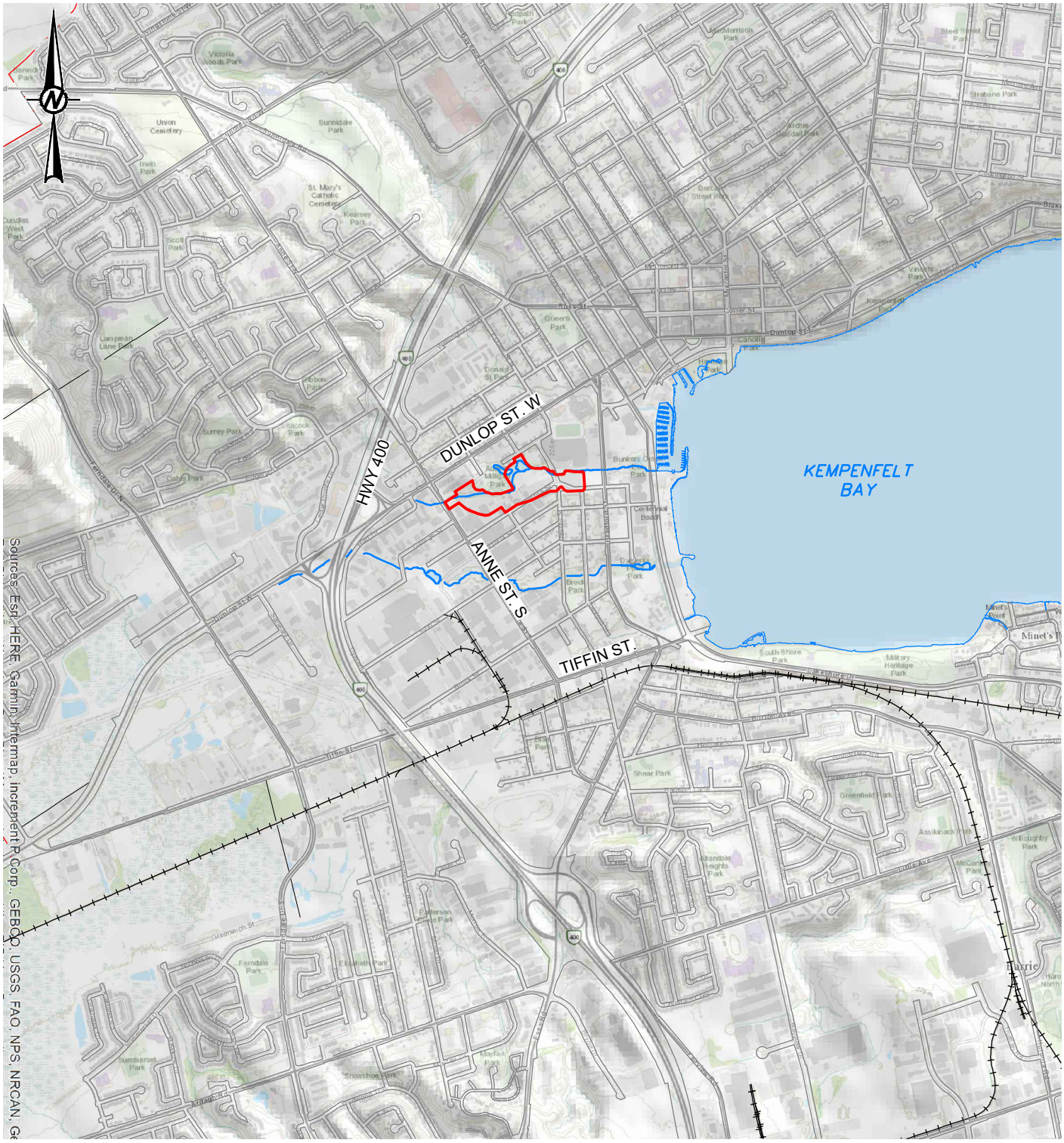
Figures



APPROXIMATE LANDFILL LIMIT

NOTES:

1. Datum is NAD UTM 83 Zone 17
2. Mapping Based on County of Simcoe Municipal Base
3. 500 m Offset D4 Assessment as per City of Barrie 2009 Official Plan

0 500 1,000
1:30,000 METRES

CLIENT
CITY OF BARRIE

PROJECT
BUNKER'S CREEK HISTORICAL LANDFILL
2025 ANNUAL MONITORING REPORT

CONSULTANT
wsp

YYYY-MM-DD	2025-10-08
DESIGNED	
PREPARED	JPR
REVIEWED	
APPROVED	CLG

TITLE
REGIONAL LOCATION MAP

PROJECT NO.	CONTROL	REV.	FIGURE
23592540	0005	----	1

LEGEND:

- Estimated Waste Limit
- Gas Probe
- Monitoring Well
- Monitoring Well / Gas Probe
- Monitoring Well / Gas Probe Decommissioned [5]
- Surface Water Sampling Location

0 50 100
1:3,000 METRES

NOTES:

1. Datum is NAD83 Zone 17
2. All Mapped Boundaries, Limits, and Interpolated Features are Approximate
3. CAD Base Digital 1:2000 Municipal Mapping Courtesy City of Barrie
4. Image City of Barrie 2022, Site Features are Approximate to Orthographic Alignment
5. MW/GP-B1 Destroyed / Decommissioned in 2024, historically dry.

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YYYY-MM-DD	2025-10-08
DESIGNED	
PREPARED	JPR
REVIEWED	
APPROVED	CLG

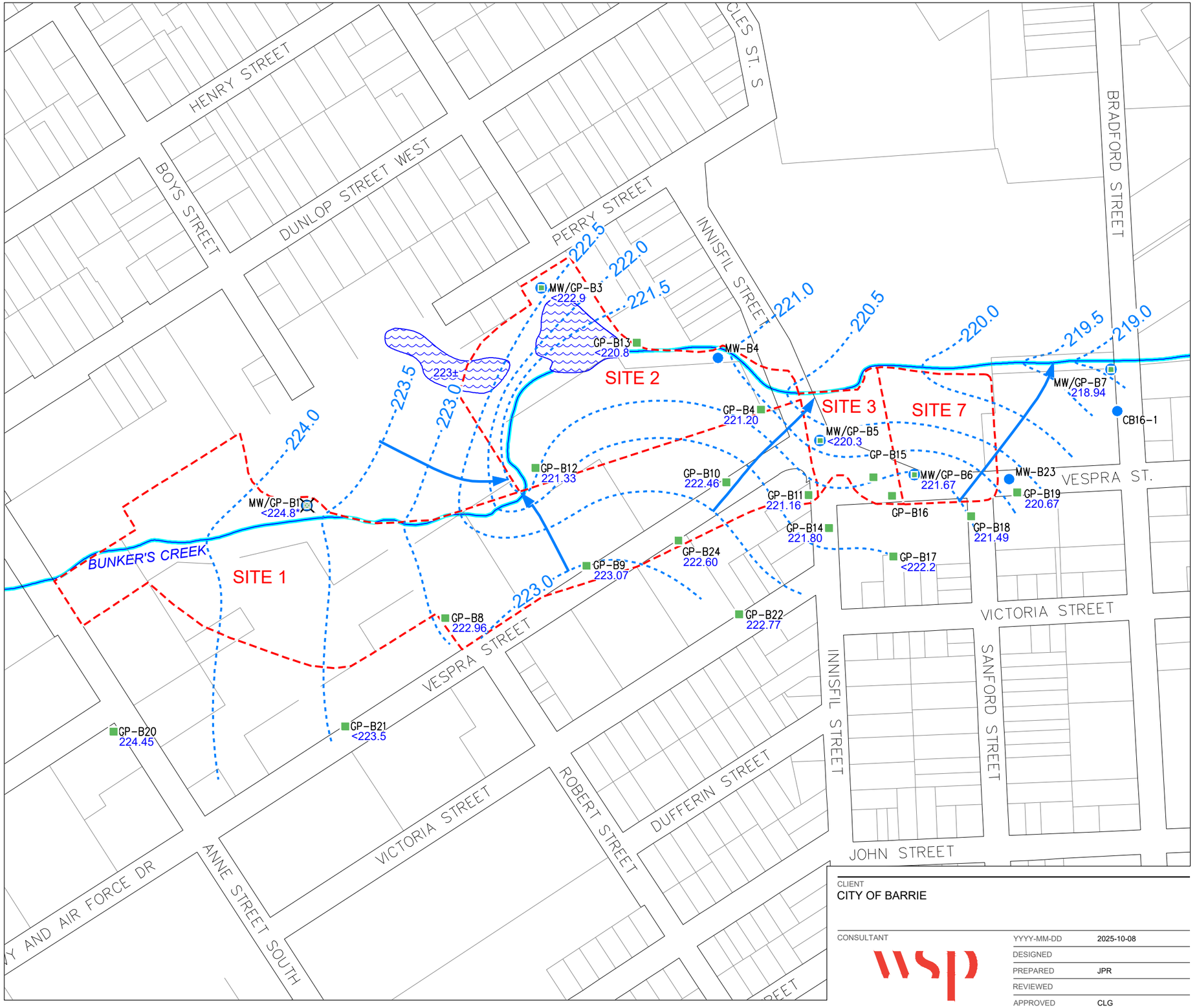
PROJECT
BUNKER'S CREEK HISTORICAL LANDFILL
2025 ANNUAL MONITORING REPORT

TITLE
SAMPLING LOCATION MAP

PROJECT NO.	CONTROL	REV.	FIGURE
23592540	0005	----	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm



LEGEND:

- Estimated Waste Limit
- Pond Feature / Watercourse
- Gas Probe
- Monitoring Well
- Monitoring Well / Gas Probe
- Monitoring Well / Gas Probe Decommissioned
- 221.61 — Shallow Static Water Elevation (masl)
- Interpolated Equipotential Line
- Interpolated Groundwater Flow Direction

0 50 100
1:3,000 METRES

NOTES:

1. Datum is NAD83 Zone 17
2. Mapped Boundaries, Limits, & Interpolated Features are Approximate.
3. CAD Base Digital 1:2000 Municipal Mapping Courtesy City of Barrie.
4. MW/GP-B1 Destroyed / Decommissioned in 2024, historically dry.
5. Shallow Static Water Elevations Monitored January 27 - 28, 2025.

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CITY OF BARRIE

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YYYY-MM-DD	2025-10-08
DESIGNED	
PREPARED	JPR
REVIEWED	
APPROVED	CLG

PROJECT
BUNKER'S CREEK HISTORICAL LANDFILL
2025 ANNUAL MONITORING REPORT

TITLE
GROUNDWATER ELEVATIONS JANUARY 2025

PROJECT NO.	CONTROL	REV.	FIGURE
23592540	0005	----	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

SWB3

Parameter	Units	PWQO	Nov-14	Sep-15	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20	Sep-21	Apr-22	Sep-22	Apr-23	Aug-23	Sep-24	Sep-25
Metals																
Copper	µg/L	5	<2.5	<0.5/<0.5	2.2	<0.5	1.7	1.0	1.4/1.3	2.3	1.3/1.4	2.2	1.9	3.2/3.4	<1/<1	2.0
Vanadium	µg/L	6	<2.5	<0.5/1.7	1.0	0.7	0.9	0.9	1.2/1.0	2.0	0.90/0.85	1.2	0.91	1.49/1.49	0.70	1.05
Polynuclear Aromatic Hydrocarbons																
Phenanthrene	µg/L	0.03	<0.05	0.16/0.13	<0.05	<0.05	<0.05	<0.05	<0.03/<0.03	0.011	<0.030/<0.030	<0.030	<0.1	<0.1/<0.1	<0.1/<0.1	-
Anthracene	µg/L	0.0008	<0.01	0.02/0.02	<0.01	<0.01	<0.01	<0.01	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.1	<0.1/<0.1	<0.1/<0.1	-
Fluoranthene	µg/L	0.0008	<0.01	0.33/0.33	<0.01	<0.01	<0.01	<0.01	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.1	<0.1/<0.1	<0.1/<0.1	-
Benzo(a)anthracene	µg/L	0.0004	<0.01	0.10/0.09	<0.01	<0.01	<0.01	<0.01	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.1	<0.1/<0.1	<0.1/<0.1	-
Chrysene	µg/L	0.0001	<0.05	0.19/0.16	<0.05	<0.05	<0.05	<0.05	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.1	<0.1/<0.1	<0.1/<0.1	-
Benzo(kf)fluoranthene	µg/L	0.0002	<0.05	0.13/0.13	<0.05	<0.05	<0.05	<0.05	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.1	<0.1/<0.1	<0.1/<0.1	-
Benzo(g,h,i)perylene	µg/L	0.00002	<0.05	0.14/0.14	<0.05	<0.05	<0.05	<0.05	<0.05/<0.05	<0.010	<0.050/<0.050	<0.050	<0.2	<0.2/<0.2	<0.2/<0.2	-
Landfill Tracer Parameters																
Iron	µg/L	300	1100	391/1390	1100	742	995	1100	800/800	1300	960/950	870	979	1230/1300	697/708	905
Phosphorus	mg/L	0.030 (interim)	-	-	-	-	-	-	-	-	-	-	-	0.053/0.055	0.021/0.022	0.036
Unionized Ammonia	mg/L	0.02	0.011	0.012/0.012	0.011	0.005	0.004	0.011	0.012/0.013	0.016	0.014/0.012	0.005	0.004	0.005/0.004	0.003/0.003	0.004

SWB2

Parameter	Units	PWQO	Nov-14	Sep-15	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20	Sep-21	Apr-22	Sep-22	Apr-23	Aug-23	Sep-24	Sep-25
Metals																
Copper	µg/L	5	<2.5	<0.5	1.2/1.3	<0.5	3.1	1.1	3.2	3.1	6.0	1.6	2.4	4.2	<1	1
Lead	µg/L	5	0.7	0.7	10.3/<0.1	0.3	0.2	<0.5	<0.5	2.8	3.4	<0.50	0.10	1.19	0.11	
Zinc	µg/L	30	<25	8.0	6/6	<5	6.0	5.9	9.2	8.0	31	<5.0	4.0	14	2.0	
Vanadium	µg/L	6	<2.5	0.8	0.7/0.8	0.7	0.7	0.87	1.1	3.0	2.6	0.97	0.81	1.5	0.70	1.08
Polynuclear Aromatic Hydrocarbons																
Fluoranthene	µg/L	0.0008	<0.01	<0.01	<0.01	<0.01/<0.01	<0.01	<0.050/<0.050	<0.050	0.011	<0.050	<0.050	<0.1	<0.1	<0.1	-
Landfill Tracer Parameters																
Iron	µg/L	300	933	745	553/606	712	613	820	900	1900	2200	820	1020	1280	708	944
Phosphorus	mg/L	0.030 (interim)	-	-	-	-	-	-	-	-	-	-	-	0.053	0.022	0.037
Unionized Ammonia	mg/L	0.02	0.016	0.013	0.010/0.010	0.004	0.004	0.011	0.012	0.017	0.007	0.007	0.003	0.005	0.005	0.005

SWB1

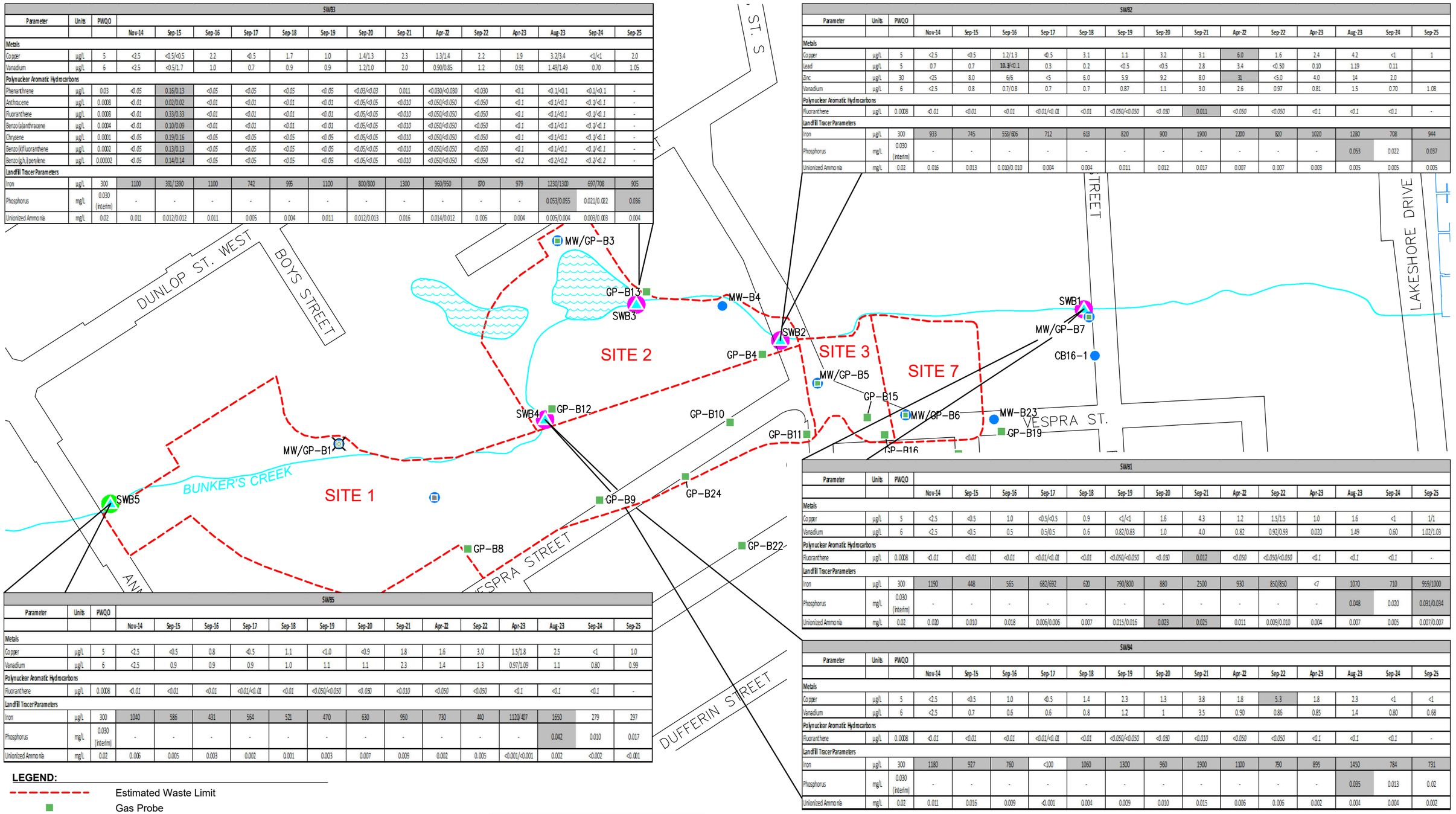
Parameter	Units	PWQO	Nov-14	Sep-15	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20	Sep-21	Apr-22	Sep-22	Apr-23	Aug-23	Sep-24	Sep-25
Metals																
Copper	µg/L	5	<2.5	<0.5	1.0	<0.5/<0.5	0.9	<1/<1	1.6	4.3	1.2	1.5/1.5	1.0	1.6	<1	1/1
Vanadium	µg/L	6	<2.5	<0.5	0.5	0.5/0.5	0.6	0.82/0.83	1.0	4.0	0.82	0.92/0.93	0.020	1.49	0.60	1.02/1.03
Polynuclear Aromatic Hydrocarbons																
Fluoranthene	µg/L	0.0008	<0.01	<0.01	<0.01	<0.01/<0.01	<0.01	<0.050/<0.050	<0.050	0.012	<0.050	<0.050/<0.050	<0.1	<0.1	<0.1	-
Landfill Tracer Parameters																
Iron	µg/L	300	1190	448	565	682/692	620	790/800	880	2500	930	850/850	<7	1070	710	959/1000
Phosphorus	mg/L	0.030 (interim)	-	-	-	-	-	-	-	-	-	-	-	0.048	0.020	0.031/0.034
Unionized Ammonia	mg/L	0.02	0.020	0.010	0.018	0.006/0.006	0.007	0.015/0.016	0.023	0.025	0.011	0.009/0.010	0.004	0.007	0.005	0.007/0.007

SWB5

Parameter	Units	PWQO	Nov-14	Sep-15	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20	Sep-21	Apr-22	Sep-22	Apr-23	Aug-23	Sep-24	Sep-25
Metals																
Copper	µg/L	5	<2.5	<0.5	0.8	<0.5	1.1	<1.0	<0.9	1.8	1.6	3.0	1.5/1.8	2.5	<1	1.0
Vanadium	µg/L	6	<2.5	0.9	0.9	0.9	1.0	1.1	1.1	2.3	1.4	1.3	0.97/1.09	1.1	0.80	0.99
Polynuclear Aromatic Hydrocarbons																
Fluoranthene	µg/L	0.0008	<0.01	<0.01	<0.01	<0.01/<0.01	<0.01	<0.050/<0.050	<0.050	<0.010	<0.050	<0.050	<0.1	<0.1	<0.1	-
Landfill Tracer Parameters																
Iron	µg/L	300	1040	586	431	564	521	470	630	950	730	440	1120/407	1650	279	297
Phosphorus	mg/L	0.030 (interim)	-	-	-	-	-	-	-	-	-	-	-	0.042	0.010	0.017
Unionized Ammonia	mg/L	0.02	0.006	0.005	0.003	0.002	0.001	0.003	0.007	0.009	0.002	0.005	<0.001/<0.001	0.002	<0.002	<0.001

SWB4

Parameter	Units	PWQO	Nov-14	Sep-15	Sep-16	Sep-17	Sep-18	Sep-19	Sep-20	Sep-21	Apr-22	Sep-22	Apr-23	Aug-23	Sep-24	Sep-25
Metals																
Copper	µg/L	5	<2.5	<0.5	1.0	<0.5	1.4	2.3	1.3	3.8	1.8	5.3	1.8	2.3	<1	<1
Vanadium	µg/L	6	<2.5	0.7	0.6	0.6	0.8	1.2	1	3.5	0.90	0.86	0.85	1.4	0.80	0.68
Polynuclear Aromatic Hydrocarbons																
Fluoranthene	µg/L	0.0008	<0.01	<0.01	<0.01	<0.01/<0.01	<0.01	<0.050/<0.050	<0.050	<0.010	<0.050	<0.050	<0.1	<0.1	<0.1	-
Landfill Tracer Parameters																
Iron	µg/L	300	1180	927	760	<100	1060	1300	960	1900	1100	790	895	1450	784	731
Phosphorus	mg/L	0.030 (interim)	-	-	-	-	-	-	-	-	-	-	-	0.035	0.013	0.02
Unionized Ammonia	mg/L	0.02	0.011	0.016	0.009	<0.001	0.004	0.009	0.010	0.015	0.006	0.005	0.002	0.004	0.004	0.002



LEGEND:

- Estimated Waste Limit
- Gas Probe
- Monitoring Well
- Monitoring Well / Gas Probe
- Monitoring Well / Gas Probe Decommissioned
- Surface Water Sampling Location
- < PWQO (2025 Samples)
- >PWQO (2025 Samples)
- 501 — Exceedance of PWQO

0 50 100
1:3,000 METRES

NOTES:

1. Datum is NAD83 Zone 17
2. All Mapped Boundaries, Limits, and Interpolated Features are Approximate
3. CAD Base Digital 1:2000 Municipal Mapping Courtesy City of Barrie
4. PWQO = Provincial Water Quality Objectives, July 1994
5. Flagged Location Exceedance relative to Sampling 2025

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YYYY-MM-DD	2025-10-08
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PREPARED	JPR
REVIEWED	
APPROVED	CLG

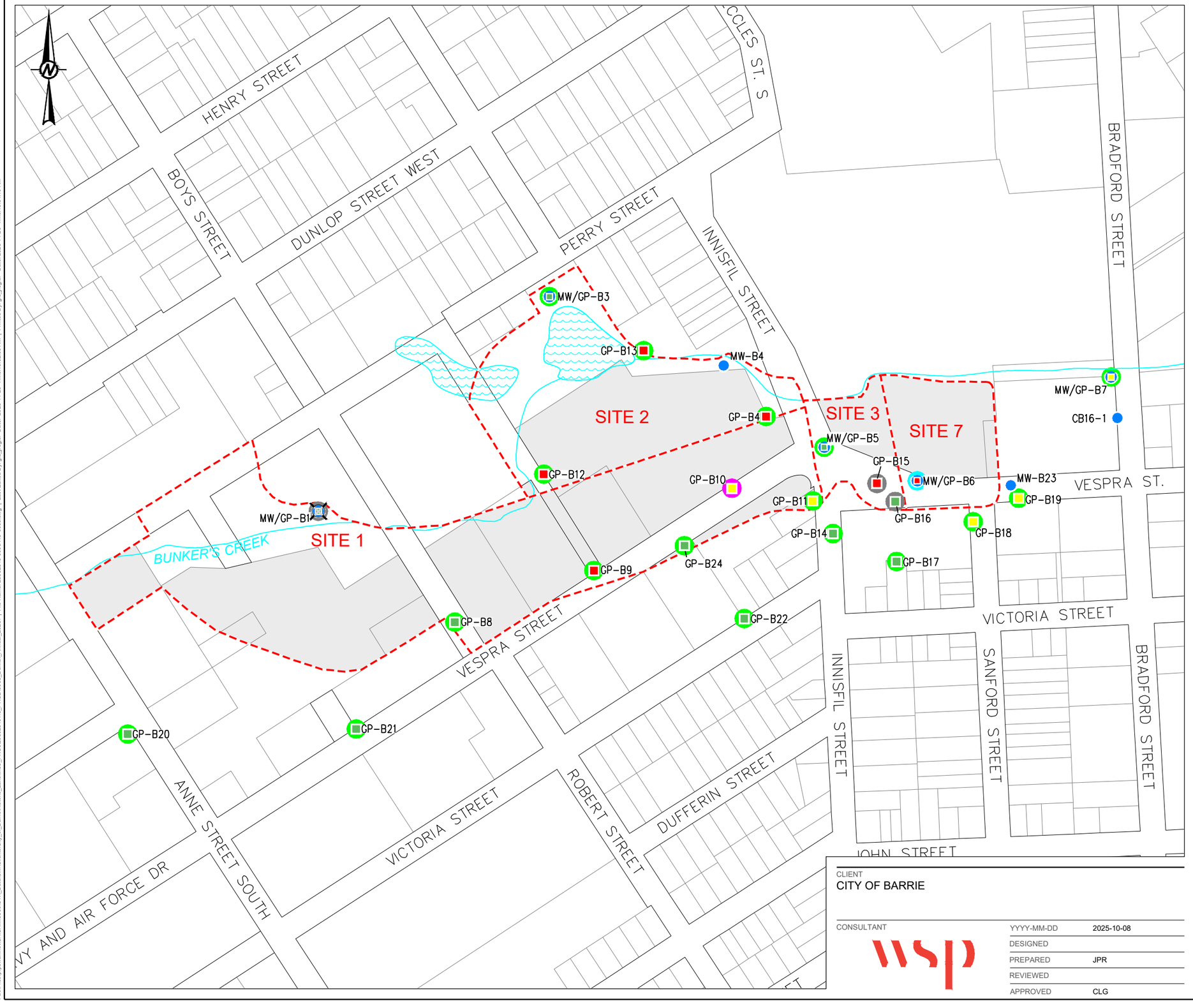
PROJECT
BUNKER'S CREEK HISTORICAL LANDFILL
2025 ANNUAL MONITORING REPORT

TITLE
SURFACE WATER RESULTS

PROJECT NO.	CONTROL	REV.	FIGURE
23592540	0005	----	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

0 25 mm



LEGEND:

- Estimated Waste Limit
- Gas Probe (Typical Screen Saturation <50%)
- Gas Probe (Typical Screen Saturation 50% - 90%)
- Gas Probe (Typical Screen Saturation >90%)
- Monitoring Well
- Monitoring Well / Gas Probe Decommissioned
- Monitoring Well / Gas Probe (Typical Screen Saturation <50%)
- Monitoring Well / Gas Probe (Typical Screen Saturation 50% - 90%)
- Monitoring Well / Gas Probe (Typical Screen Saturation >90%)
- <1% Methane Gas Concentration
- 1% - 4.9% Methane Gas Concentration
- >5.0% Methane Gas Concentration
- Methane Gas Concentration Not Monitored
- Privately Owned Property

0 50 100
1:3,000 METRES

NOTES:

1. Datum is NAD83 Zone 17
2. All Mapped Boundaries, Limits, and Features are Approximate
3. CAD Base Digital 1:2000 Municipal Mapping Courtesy City of Barrie
4. MW/GP-B1 Destroyed / Decommissioned in 2024
5. Readings Represent Highest Reading(s) Sampling Events 2025

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PROJECT
BUNKER'S CREEK HISTORICAL LANDFILL
2025 ANNUAL MONITORING REPORT

TITLE
METHANE GAS CONCENTRATIONS

PROJECT NO.	CONTROL	REV.	FIGURE
23592540	0005	----	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

Path: \\corp.pbwan.net\CA\CAAMS3\06\CTX_Data\SIM\Clients\City_of_Barrie\Historic_Landfill\99_PROJ\23592540\40_PROD\0005_Bunker_Annual_2025\ | File Name: 23592540-0005-HS-0005.dwg | Last Edited By: gld_jregier Date: 2025-11-20 Time:10:02:03 AM | Printed By: gld_jregier Date: 2025-11-20 Time:10:04:10 AM

Tables

Table 4
Surface Water Analytical Results
Metals and Inorganics
City of Barrie Bunker's Creek Historical Waste Sites

Monitoring Well Location				SWB1																				
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	15-Sep-17	07-Sep-18	05-Sep-19	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 12:00	03-Sep-25 00:00
Parameter	Units	RDL	PWQO									Field Duplicate of SWB1			Field Duplicate of SWB1					Field Duplicate of SWB1					Field Duplicate of SWB1
Dissolved Metals																									
Aluminum-dissolved	µg/L	1	75	<4	40	40	8	4	<1	4	2	<1	<1	<5	<5	6	15	<5	7	10	9	5	3	5	5
Aluminum (total)	µg/L	1	NO	-	-	80	-	-	34	-	-	-	-	24	21	39	1200	25	30	25	2	139	13	77	81
Antimony	µg/L	0.9	20	<3	<0.5	0.2	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	100	<3	<1	0.3	<1	<5	<1	2	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	< 0.2	0.3	< 0.2	0.2	0.3
Barium	µg/L	0.08	NO	116	140	163	138	160	166	170	153	159	135	160	160	160	160	160	150	140	0.74	143	171	185	196
Beryllium	µg/L	0.007	11	<1	<0.5	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.40	<0.40	<0.40	<0.40	<0.40	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Total Bismuth (Bi)	µg/L	0.01	NO	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	-	< 0.01	< 0.01	< 0.01
Boron	µg/L	2	200	13	10	19	21	<50	38	24	23	22	15	26	26	20	23	19	21	20	< 2	20	22	20	21
Cadmium	µg/L	0.003	0.2	<0.1	<0.1	0.13	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.09	<0.090	<0.090	<0.090	<0.090	< 0.003	0.011	0.003	0.010	0.008
Chromium	µg/L	0.08	NO	14	3	3.3	8	<5	<1	1	<1	<1	<1	<5	<5	<5	<5.0	<5.0	<5.0	<5.0	0.19	1.5	0.40	0.85	1.01
Cobalt	µg/L	0.004	0.9	<0.5	0.4	0.2	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<0.5	0.9	<0.50	<0.50	<0.50	0.006	0.211	0.110	0.148	0.160
Copper	µg/L	1	5	<2	2	**9.1**	4.8	<2.5	<0.5	1	<0.5	<0.5	0.9	<1	<1	1.6	4.3	1.2	1.5	1.5	1.0	1.6	< 1	1	1
Iron	µg/L	7	300	**884**	**1110**	**675**	**1480**	**1190**	**448**	**565**	**682**	**692**	**620**	**790**	**800**	**880**	**2500**	**930**	**850**	**850**	< 7	**1070**	**710**	**959**	**1000**
Lead	µg/L	0.09	5	1	<1	2.07	1.7	1	<0.1	<0.1	0.2	0.2	0.1	<0.5	<0.5	<0.50	4	<0.50	<0.50	<0.50	< 0.09	0.72	< 0.09	0.73	0.81
Total Lithium (Li)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	-	<5	<5.0	<5.0	<5.0	<5.0	0.2	2.4	3.0	2.8	3.0
Manganese	µg/L	0.0	NO	73	110	77	100	118	51	38	47	48	46	54	54	62	140	86	69	69	0.24	66.8	39.0	55.9	58.0
Molybdenum	µg/L	0.40	40	<2	<5	0.8	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	0.71	<0.50	0.59	0.57	< 0.04	0.66	0.40	0.50	0.50
Nickel	µg/L	0.10	25	<3	<5	<10	4	<5	<1	<1	<1	<1	<1	<1	<1	<1.0	2.2	<1.0	<1.0	<1.0	< 0.1	1.2	0.50	0.60	0.70
Selenium	µg/L	0.04	100	<4	<1	<1	<1	<5	<1	1	<1	<1	<1	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.04	0.280	0.271	0.31	0.26
Total Silicon (Si)	µg/L	20	NO	-	-	-	-	-	-	-	-	-	-	-	-	4900	7200	4500	5000	5000	< 20	4940	5060	5580	5790
Silver	µg/L	0.05	0.1	<0.1	<0.1	0.02	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.09	<0.090	<0.090	<0.090	<0.090	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Strontium	µg/L	0.08	NO	432	607	490.000	454	611	503	436	482	496	412	460	460	490	620	690	590	590	1.08	545	529	521	539
Total Tellurium (Te)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thallium	µg/L	0.005	0.3	<0.3	<0.1	<0.05	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	-	< 0.005	< 0.005	< 0.005	< 0.005
Total Tin (Sn)	µg/L	0.06	NO	-	-	-	-	-	<5	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	< 0.06	0.11	0.15
Titanium	µg/L	0.10	NO	2	<10	<5	<5	<25	<5	<5	<5	<5	<5	<5	<5	7.6	57	<5.0	<5.0	<5.0	0.06	7.26	0.60	3.90	7.20
Tungsten	µg/L	0.02	30	<10	<5	20	<0.01	<50	<10	<10	<10	<10	<10	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.02	0.14	0.045	< 0.2	< 0.2
Uranium	µg/L	0.00	5	<2	1	1.1	0.9	1.3	0.3	0.9	1.0	1	0.9	0.96	0.95	0.99	1.6	1.1	0.97	0.93	0.004	0.769	0.90	0.81	0.85
Vanadium	µg/L	0.01	6	5	1	0.4	2.7	<2.5	<0.5	0.5	0.5	0.5	0.6	0.82	0.83	1.0	4.0	0.82	0.92	0.93	0.020	1.49	0.60	1.02	1.03
Zinc	µg/L	2	30	6	<10	15	15	<25	<5	6	<5	<5	6	<5	<5	5.5	11	<5.0	<5.0	5.9	< 2	13	2.0	6.0	7.0
Zirconium	µg/L	2	4	<4	<2	<3	<1	<5	<1	<1	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	-	< 2	< 2	< 2
Dissolved Mercury	µg/L	0.01	0.2	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	-	<0.10	<0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Inorganics																									
Electrical Conductivity	uS/cm	2	NO	1450	2150	1400	2110	3120	1780	1700	1790	1820	1880	1900	1900	2000	1800	2500	2000	2000	2320	1610	1850	1890	1890
pH	No unit	0.05	6.5:8.5	8.33	7.96	7.70	7.68	7.52	7.89	7.98	7.58	7.65	7.69	8.14	8.14	8.16	8.23	8.17	8.10	8.05	8.21	8.03	8.19	7.98	8.04
Total Hardness (as CaCO3)	mg/L	0.05	NO	359	389	340	428	368	387	348	388	389	347	450	460	360	360	390	350	350	-	322	367	383	401
Alkalinity (as CaCO3)	mg/L as CaCO3	2	NO	263	267	264	279	262	272	258	286	272	255	270	270	270	250	280	240	240	257	217	247	262	254
Chloride	mg/L	0.04	NO	343	511	312	467	630	385	413	366	372	375	420	420	430	410	650	430	440	590	440	520	470	450
Sulphate	mg/L	0.04	NO	28.8	32	30	30	40	30	34.6	29.7	31.3	30.4	28	28	27	28	39	26	29	43	21	26	28	28
Phosphorus (total)	mg/L	0.003	0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.048**	0.020	**0.031**	**0.034**
Ammonia as N	as N mg/L	0.10	NO	-	0.72	0.29	0.96	0.85	0.50	0.44	0.47	0.47	0.51	0.52	0.56	0.55	0.53	0.54	0.49	0.51	0.50	0.30	0.40	0.60	0.60
Unionized Ammonia (calculated)	mg/L as N		0.02	-	0.005	0.001	<0.001	0.020	0.010	0.018	0.006	0.006	0.007	0.015	0.016	**0.023**	**0.025**	0.011	0.009	0.010	0.004	0.007	0.005	0.007	0.007
Calcium	µg/L	10	NO	120000	131000	123000	145000	125000	129000	115000	130000	130000	114000	-	-	120000	130000	140000	120000	120000	200	107000	121000	126000	131000
Magnesium	µg/L	1	NO	14400	15000	14600	15800	13500	16000	14800	15600	15600	15100	-	-	15000	17000	16000	17000	16000	19	13600	15800	16900	17800
Sodium	µg/L	10	NO	173000	288000	170000	318000	414000	208000	191000	210000	213000	193000	-	-	250000	260000	390000	270000	270000	1040	214000	233000	257000	270000
Potassium	µg/L	9	NO	2960	3000	2600	2730	3010	2830	3060	2760	2800.00	2810	-	-	2700	3100	3700	4500	4400	54	3180	2820	2830	2950

Notes:

1. NO = No objective
2. mg/L = Milligrams per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 4
Surface Water Analytical Results
Metals and Inorganics
City of Barrie Bunker's Creek Historical Waste Sites

Monitoring Well Location				SWB2																	
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16		15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 12:45
Parameter	Units	RDL	PWQO								Field Duplicate of SWB2											
Dissolved Metals																						
Aluminum-dissolved	µg/L	1	75	<4	60	40	4	3	<1	<1	5	2	<1	<5	6	11	<5	10	8	5	4	5
Aluminum (total)	µg/L	1	NO	-	-	110	-	-	372	-	-	-	-	39	61	750	600	60	26	173	21	76
Antimony	µg/L	0.9	20	<3	<0.5	<0.1	<0.5	<0.0025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	100	<3	<1	0.3	<1	<5	<1	2	4	<1	<1	<1.0	<1	<1.0	<1.0	<1.0	< 0.2	0.5	0.2	0.2
Barium	µg/L	0.08	NO	122	140	173	139	143	174	170.000	187	161	139	160.000	160.000	160.000	180	150	158	150	176	184
Beryllium	µg/L	0.007	11	<1	<0.5	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.40	<0.40	<0.40	<0.40	< 0.007	< 0.007	< 0.007	< 0.007
Total Bismuth (Bi)	µg/L	0.01	NO	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	-	-	< 0.01	< 0.01
Boron	µg/L	2	200	16	10	18	18	<50	81	37	23	21	13	24	17	22	19	18	22	18	20	20
Cadmium	µg/L	0.003	0.2	<0.1	<0.1	0.08	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	0.006	0.021	0.006	0.013
Chromium	µg/L	0.08	NO	12	3	2.1	8	<5	<1	3	1	<1	<1	<5.0	<5	<5.0	<5.0	<5.0	0.83	1.69	0.60	0.89
Cobalt	µg/L	0.004	0.9	<0.5	0.4	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	0.58	0.55	<0.50	0.183	0.209	0.120	0.158
Copper	µg/L	1	5	<2	2	**5.3**	2.8	<2.5	<0.5	1.2	1.3	<0.5	3.1	1.1	3.2	3.1	**6.0**	1.9	2.4	4.2	< 1	2
Iron	µg/L	7	300	**831**	**1010**	**731**	**1030**	**933**	**745**	**553**	**606**	**712**	**613**	**820**	**900**	**1900**	**2200**	**820**	**1020**	**1280**	**708**	**944**
Lead	µg/L	0.09	5	1	<1	0.83	0.8	0.7	0.7	10.3	<0.1	0.3	0.2	<0.50	<0.50	2.8	3.4	<0.50	0.10	1.19	0.11	0.91
Total Lithium (Li)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	<5	<5.0	<5.0	<5.0	2.9	2.5	3.0	2.8
Manganese	µg/L	0.0	NO	70	100	30.000	80.000	102	52	34	38	47	45	53	59	130	110	67	72.3	80.3	39.0	51.0
Molybdenum	µg/L	0.40	40	<2	<5	0.7	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	0.55	0.64	0.53	0.60	0.33	0.60	< 0.4	0.40
Nickel	µg/L	0.10	25	<3	<5	<10	4	<5	<1	<1	<1	<1	<1	<1.0	<1.0	1.5	1.8	<1.0	0.9	1.1	0.50	0.60
Selenium	µg/L	0.04	100	<4	<1	<1	<1	<5	<1	2	9	<1	<1	<2.0	<2.0	<2.0	<2.0	<2.0	0.28	0.27	0.262	0.25
Total Silicon (Si)	µg/L	20	NO	-	-	-	-	-	-	-	-	-	-	-	5000.0	6300	5600	5000	4960	5680	5720	5780
Silver	µg/L	0.05	0.1	<0.1	<0.1	<0.02	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	< 0.05	< 0.05	< 0.05	< 0.05
Strontium	µg/L	0.08	NO	471	615	519	431	545	539	475	533	516	399	480.000	490.000	580.000	670	590	740	498	546	523
Total Tellurium (Te)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	< 0.1	< 0.1	< 0.1	< 0.1
Thallium	µg/L	0.005	0.3	<0.3	<0.1	<0.05	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.050	<0.05	<0.050	<0.050	<0.050	-	< 0.005	< 0.005	< 0.005
Total Tin (Sn)	µg/L	0.06	NO	-	-	-	-	-	<5	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	-	< 0.06	0.12
Titanium	µg/L	0.10	NO	3	<10	<5	<5	<25	<5	<5	<5	<5	<5	5.2	5.6	38	40	7.1	1.17	9.82	1.10	4.60
Tungsten	µg/L	0.02	30	<10	<5	20	<0.01	<50	<10	<10	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	0.14	0.15	0.043	< 0.2
Uranium	µg/L	0.00	5	<2	1	1.34	0.9	1.3	1.1	1.0000	1.1	1.1	0.8	1	1.1	1.4	1.1	0.96	0.969	0.708	0.90	0.84
Vanadium	µg/L	0.01	6	6	2	0.5	2.3	<2.5	0.8	0.7	0.8	0.7	0.7	0.87	1.1	3	2.6	0.97	0.81	1.5	0.70	1.08
Zinc	µg/L	2	30	7	<10	14	11	<25	8	6	6	<5	6	5.9	9.2	8	**31**	<5.0	4	14	2.0	9.0
Zirconium	µg/L	2	4	<4	<2	<3	<1	<5	<1	<1	2	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	-	< 2	< 2
Dissolved Mercury	µg/L	0.01	0.2	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	-	<0.10	< 0.01	< 0.01	< 0.01	< 0.01
Inorganics																						
Electrical Conductivity	uS/cm	2	NO	1430	2180	1380	2130	2980	1790	1780	1790	1790	1860	1900	1900	1900	2300	1900	2200	1510	1800	1810
pH	No unit	0.05	6.5:8.5	8.35	7.99	7.72	7.70	7.56	7.99	7.96	8.00	7.66	7.86	8.17	8.18	8.21	8.23	7.99	8.22	7.95	8.05	8.06
Total Hardness (as CaCO3)	mg/L	0.05	NO	348	389	335	384	334	389	383	422	419	352	440	350	360	390	350	-	323	372	395
Alkalinity (as CaCO3)	mg/L as CaCO3	2	NO	258	264	269	302	279	273	258	257	274	275	270	270	250	280	230	265	229	259	246
Chloride	mg/L	0.04	NO	340	526	370	478	623	398	401	382	345	370	420	390	440	600	450	570	390	590	440
Sulphate	mg/L	0.04	NO	29.4	32	30	40	40	30	34.3	35.1	31.7	30.6	29	28	27	38	27	43	23	27	28
Phosphorus (total)	mg/L	0.003	0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.053**	0.022	**0.037**
Ammonia as N	as N mg/L	0.10	NO	-	0.54	0.11	0.66	0.53	0.34	0.23	0.22	0.29	0.23	0.34	0.29	0.37	0.31	0.25	0.30	0.20	0.20	0.40
Unionized Ammonia (calculated)	mg/L as N		0.02	-	0.002	<0.001	0.001	0.016	0.013	0.010	0.010	0.004	0.004	0.011	0.012	0.017	0.007	0.007	0.003	0.005	0.005	0.005
Calcium	µg/L	10	NO	116000	131000	132000	127000	113000	128000	129000	142000	141000	115000	-	120000	130000	160000	120000	136000	105000	123000	129000
Magnesium	µg/L	1	NO	14200	15000	15700	16100	12400	17000	14800	16500	16400	15700	-	15000	16000	18000	16000	16000	14600	16000	17500
Sodium	µg/L	10	NO	166000	315000	179000	301000	346000	224000	203000	225000	224000	187000	-	250000	250000	360000	270000	346000	184000	234000	257000
Potassium	µg/L	9	NO	2970	3000	2700	2670	2670	2970	3360	3760	2800.00	2690.00	-	2600.00	2900.00	3800	4500	3870	2900	2790	2790

Notes:

1. NO = No objective
2. mg/L = Milligrams per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 4
Surface Water Analytical Results
Metals and Inorganics
City of Barrie Bunker's Creek Historical Waste Sites

Monitoring Well Location				SWB3																					
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15		07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	11-Sep-20	17-Sep-21	11-Apr-22	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	30-Aug-23	13-Sep-24	13-Sep-24	03-Sep-25 13:15
Parameter	**Units**	**RDL**	**PWQO**							**Field Duplicate of SWB3**						**Field Duplicate of SWB3**			**Field Duplicate of SWB3**					**Field Duplicate of SWB3**	
Dissolved Metals																									
Aluminum-dissolved	µg/L	1	75	<4	50	40	4	4	<1	<1	3	2	<1	<5	6	6	9	<5	<5	8	17	5	5	4	3	4
Aluminum (total)	µg/L	1	NO	-	-	200	-	-	35	515	-	-	-	21	41	46	330	41	41	86	54	161	173	19	19	100
Antimony	µg/L	0.9	20	<3	<0.5	0.1	<0.5	<0.0025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	100	<3	<1	0.4	<1	<5	<1	<1	2	<1	<1	<1.0	<1	<1	<1.0	<1.0	<1.0	<1.0	0.2	0.4	0.3	< 0.2	< 0.2	0.2
Barium	µg/L	0.08	NO	116	150	181	156	158	163	167	199	156	157	140.000	150.000	150.000	150.000	160	160	150	157	152	157	167	169	180
Beryllium	µg/L	0.007	11	<1	<0.5	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	< 0.007	0.007	< 0.007	< 0.007	< 0.007	< 0.007
Total Bismuth (Bi)	µg/L	0.01	NO	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	-	-	< 0.01	< 0.01	< 0.01
Boron	µg/L	2	200	17	10	19	18	<50	32	79	26	20.000	18.000	29.000	16.000	16.000	23.000	19	18	19	19	17	18	19	19	19
Cadmium	µg/L	0.003	0.2	<0.1	<0.1	0.08	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.09	<0.090	<0.090	<0.090	<0.090	0.009	0.019	0.020	0.004	0.005	0.009
Chromium	µg/L	0.08	NO	14	3	2.5	9	<5	<1	1	1	<1	<1	<5.0	<5	<5	<5.0	<5.0	<5.0	<5.0	0.95	1.52	1.63	0.60	0.50	0.98
Cobalt	µg/L	0.004	0.9	<0.5	0.4	0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	0.177	0.198	0.208	0.100	0.110	0.155
Copper	µg/L	1	5	2	2	**6.9**	3.2	<2.5	<0.5	<0.5	2.2	<0.5	1.7	1.0000	1.4	1.3	2.3	1.3	1.4	2.2	1.9	3.4	3.2	< 1	< 1	2
Iron	µg/L	7	300	**1270**	**1200**	**1200**	**1420**	**1100**	**391**	**1390**	**1100**	**742**	**995**	**1100**	**800**	**800**	**1300**	**960**	**950**	**870**	**979**	**1230**	**1300**	**697**	**708**	**905**
Lead	µg/L	0.09	5	1	<1	1.62	1.3	0.9	0.6	4.1	0.4	0.3	0.9	<0.50	<0.50	<0.50	1.4	<0.50	<0.50	<0.50	0.21	1.19	1.26	0.12	0.10	0.67
Total Lithium (Li)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	<5	<5	<5.0	<5.0	<5.0	<5.0	2.7	3.0	2.7	3.0	3.0	2.8
Manganese	µg/L	0.0	NO	95	130	98	106	125	61	75	54	49	63	70	58	59	110	87	88	66	65.8	72.7	73.7	39.0	40.0	47.6
Molybdenum	µg/L	0.40	40	<2	<5	0.7	<0.5	<2.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	0.55	0.68	0.52	<0.50	0.56	0.28	0.55	0.51	< 0.4	< 0.4	0.40
Nickel	µg/L	0.10	25	<3	<5	<10	4	<5	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	1.1	0.8	1.0	1.0	0.50	0.50	0.70
Selenium	µg/L	0.04	100	<4	<1	<1	<1	<5	<1	<1	4	<1	<1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	0.29	0.25	0.29	0.255	0.263	0.25
Total Silicon (Si)	µg/L	20	NO	-	-	-	-	-	-	-	-	-	-	-	4800	4800	5600	4900	4800	5300	5250	6260	6220	5110	5200	5740
Silver	µg/L	0.05	0.1	<0.1	<0.1	<0.02	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.09	<0.090	<0.090	<0.090	<0.090	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Strontium	µg/L	0.08	NO	530	715	530.000	559	653	502	505	584	493	536	580	480	480	570	640	620	580	741	483	485	512	520	536
Total Tellurium (Te)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thallium	µg/L	0.005	0.3	<0.3	<0.1	<0.05	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.050	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	-	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Tin (Sn)	µg/L	0.06	NO	-	-	-	-	-	<5	<5	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	< 0.06	< 0.06	0.14
Titanium	µg/L	0.10	NO	5	<10	10.000	6	<25	<5	10.000	<5	<5	<5	<5.0	<5.0	<5.0	19	5.4	5.1	7.1	2.55	9.28	9.12	0.80	0.90	6.00
Tungsten	µg/L	0.02	30	<10	<5	10	<0.01	<50	<10	<10	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.09	0.13	0.13	0.042	0.045	< 0.2
Uranium	µg/L	0.00	5	<2	1	1.46	1.1	1.3	0.3	1.1	1.1	1.1	1.1	1.2	0.98	0.99	1.5	0.99	0.96	0.92	0.914	0.671	0.691	0.90	0.90	0.84
Vanadium	µg/L	0.01	6	**7**	1	0.8	3.4	<2.5	<0.5	1.7	1.0	0.70	0.90	0.90	1.2	1.0	2.0	0.90	0.85	1.2	0.91	1.49	1.49	0.60	0.70	1.05
Zinc	µg/L	2	30	19	<10	29	18	<25	14	30	10	<5	9	<5.0	5.3	<5.0	<5.0	5.3	6.4	8.8	4	13	13	2.0	3.0	8.0
Zirconium	µg/L	2	4	<4	<2	<3	<1	<5	<1	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	-	-	< 2	< 2	< 2
Dissolved Mercury	µg/L	0.01	0.2	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	-	-	<0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Inorganics																										
Electrical Conductivity	uS/cm	2	NO	1560	2400	1390	2300	3140	1800	1800	1980	1830	1980	2100	1900	2000	1900	2400	2400	1900	2180	1410	1450	1820	1860	1840
pH	No unit	0.05	6.5:8.5	8.32	7.95	7.76	7.66	7.51	7.91	7.95	8.01	7.70	7.56	8.14	8.17	8.22	8.19	8.17	8.10	8.07	8.19	7.99	8.33	8.17	8.10	8.05
Total Hardness (as CaCO3)	mg/L	0.05	NO	374	380	347	461	332	392	400	417	392	388	430	350	350	350	410	400	350	-	331	341	357	358	390
Alkalinity (as CaCO3)	mg/L as CaCO3	2	NO	259	264	259	292	279	273	267	269	271	262	260	270	260	240	280	270	240	255	230	224	241	294	246
Chloride	mg/L	0.04	NO	426	589	394	522	788	399	361	466	365	390	480	420	410	440	610	620	440	620	360	360	510	530	430
Sulphate	mg/L	0.04	NO	32.7	35	30	40	40	30	30	36.9	31.4	32.7	30	28	28	28	38	38	29	42	25	24	26	27	28
Phosphorus (total)	mg/L	0.003	0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.053**	**0.055**	0.021	0.022	**0.036**
Ammonia as N	as N mg/L	0.10	NO	-	0.54	0.11	0.56	0.53	0.27	0.28	0.22	0.26	0.40	0.34	0.31	0.30	0.35	0.69	0.72	0.19	0.40	0.20	0.20	0.20	0.20	0.30
Unionized Ammonia (calculated)	mg/L as N		0.02	-	0.002	<0.001	0.001	0.011	0.012	0.012	0.011	0.005	0.004	0.011	0.012	0.013	0.016	0.014	0.012	0.005	0.004	0.005	0.004	0.003	0.003	0.004
Calcium	µg/L	10	NO	127000	129000	136000	156000	113000	131000	133000	141000	131000	127000	-	120000	120000	120000	140000	140000	130000	136000	107000	111000	118000	118000	128000
Magnesium	µg/L	1	NO	13900	14000	16000.0	17000.0	12200	15500	16500	15600	15600	17000	-	15000	15000	15000	16000	16000	17000	15900	15400	15600	15500	15500	17400
Sodium	µg/L	10	NO	227000	382000	180000	414000	465000	209000	208000	243000	214000	232000	-	240000	240000	280000	360000	350000	260000	332000	171000	172000	223000	226000	253000
Potassium	µg/L	9	NO	3460	3000	2800	3040	2840	2760	2780	3940	2710	3270	-	2500.00	2500.00	2700.00	3500	3300	4400	3680	2920	2960	2660	2740	2780

Notes:

1. NO = No objective
2. mg/L = Milligrams per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 4
Surface Water Analytical Results
Metals and Inorganics
City of Barrie Bunker's Creek Historical Waste Sites

Monitoring Well Location				SWB4																
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 13:45
Parameter	**Units**	**RDL**	**PWQO**																	
Dissolved Metals																				
Aluminum-dissolved	µg/L	1	75	<4	30	40	6	8	<1	<1	2	<1	<5	6	10	<5	5	7	4	13	3
Aluminum (total)	µg/L	1	NO	-	-	70	-	-	347	-	-	-	88	25	820	37	28	23	74	10	12
Antimony	µg/L	0.9	20	<3	<0.5	0.2	<0.5	<0.0025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	100	<3	<1	0.6	<1	<5	<1	2	<1	<1	<1.0	<1	<1.0	<1.0	<1.0	< 0.2	0.5	< 0.2	< 0.2
Barium	µg/L	0.08	NO	121	140	163	137	161	156	145	147	144	150	130	140	160	170	156	168	167	152
Beryllium	µg/L	0.007	11	<1	<0.5	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.40	<0.40	<0.40	<0.40	< 0.007	< 0.007	< 0.007	< 0.007
Total Bismuth (Bi)	µg/L	0.01	NO	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	-	-	< 0.01	< 0.01
Boron	µg/L	2	200	17	10	22	18	<50	85	39	14	18	29	17	28	20	20	19	19	23	22
Cadmium	µg/L	0.003	0.2	<0.1	<0.1	0.10000	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	< 0.003	0.008	0.007	0.003
Chromium	µg/L	0.08	NO	12	3	2.6	9	<5	<1	1	<1	<1	<5.0	<5	<5.0	<5.0	5.2	0.91	3.78	0.50	0.99
Cobalt	µg/L	0.004	0.9	<0.5	0.4	0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	0.6	<0.50	<0.50	0.165	0.158	0.110	0.096
Copper	µg/L	1	5	2.0	2.0	**8.9**	1.8	<2.5	<0.5	1.0	<0.5	1.4	2.3	1.3	3.8	1.8	**5.3**	1.8	2.3	< 1	< 1
Iron	µg/L	7	300	**1260**	**1190**	**1010**	**1330**	**1180**	**927**	**760**	<100	**1060**	**1300**	**960**	**1900**	**1100**	**790**	**895**	**1450**	**784**	**731**
Lead	µg/L	0.09	5	<1	<1	5.41	0.3	1.3	0.3	<0.1	<0.1	0.2	0.69	<0.50	4.7	<0.50	<0.50	0.09	0.50	< 0.09	0.11
Total Lithium (Li)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	<5	<5.0	<5.0	<5.0	2.7	2.5	3.0	2.7
Manganese	µg/L	0.0	NO	101	120	79	118	136	64	39	7	68	79	62	120	100	53	62	97.4	42.0	35.2
Molybdenum	µg/L	0.40	40	<2	<5	0.8	<0.5	<2.5	0.7	<0.5	<0.5	<0.5	<0.50	<0.5	1.6	0.59	0.63	0.28	0.51	0.40	0.50
Nickel	µg/L	0.10	25	<3	<5	<10	4	<5	<1	<1	<1	<1	<1.0	<1.0	1.5	1.1	1.1	0.7	0.9	0.50	0.60
Selenium	µg/L	0.04	100	<4	<1	<1	<1	<5	<1	3	<1	<1	<2.0	<2.0	<2.0	<2.0	<2.0	0.27	0.35	0.311	0.28
Total Silicon (Si)	µg/L	20	NO	-	-	-	-	-	-	-	-	-	-	4300	6200	4600	6800	5320	5890	5400	5220
Silver	µg/L	0.05	0.1	<0.1	<0.1	0.02	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	< 0.05	< 0.05	< 0.05	< 0.05
Strontium	µg/L	0.08	NO	573	763	690.000	614	841	695	582	348	562	600	540	560	780	520	699	638	587	567
Total Tellurium (Te)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	< 0.1	< 0.1	< 0.1	< 0.1
Thallium	µg/L	0.005	0.3	<0.3	<0.1	<0.05	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.050	<0.05	<0.050	<0.050	<0.050	-	< 0.005	< 0.005	< 0.005
Total Tin (Sn)	µg/L	0.06	NO	-	-	-	-	-	<5	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	-	< 0.06	0.09
Titanium	µg/L	0.10	NO	2	<10	<5	<5	<25	<5	<5	<5	<5	7.8	<5.0	43	5.5	<5.0	0.94	4.53	0.40	0.60
Tungsten	µg/L	0.02	30	<10	<5	20	<10	<50	<10	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	0.08	0.07	0.042	< 0.2
Uranium	µg/L	0.00	5	<2	1	1.44	1.3	1.6	1.4	1.3	0.8	1.1	1.3	1.1	4.2	1.2	0.65	0.905	1.03	1.10	0.93
Vanadium	µg/L	0.01	6	**7**	1	0.6	4.4	<2.5	0.7	0.6	0.6	0.8	1.2	1	3.5	0.90	0.86	0.85	1.4	0.80	0.68
Zinc	µg/L	2	30	8	20	13	6	<25	7	<5	<5	14	14	<5.0	10	5.9	5.9	4.0	9.0	2.0	3.0
Zirconium	µg/L	2	4	<4	<2	<3	<1	<5	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	-	< 2	< 2
Dissolved Mercury	µg/L	0.01	0.2	<0.1	<0.1	<0.02	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	-	<0.10	< 0.01	< 0.01	< 0.01	< 0.01
Inorganics																					
Electrical Conductivity	uS/cm	2	NO	1600	2580	1450	2310	4410	2010	1870	1590	1960	2100	1900	2400	2900	1600	2540	1640	1640	1900
pH	No unit	0.05	6.5:8.5	8.35	7.95	7.72	7.73	7.49	7.81	7.94	7.87	7.60	8.15	8.15	8.20	8.15	8.13	8.19	8.10	8.21	8.04
Total Hardness (as CaCO3)	mg/L	0.05	NO	332	377	335	459	358	374	376	388	388	430	330	350	390	310	-	349	374	342
Alkalinity (as CaCO3)	mg/L as CaCO3	2	NO	257	262	268	295	267	278	268	276	249	270	250	240	270	200	244	240	271	226
Chloride	mg/L	0.04	NO	404	649	414	505	1130	442	434	324	365	470	430	600	780	340	700	440	540	460
Sulphate	mg/L	0.04	NO	32.6	37	30	40	40	30	35.7	30.0	34.9	29	28	32	38	28	46	28	28	31
Phosphorus (total)	mg/L	0.003	0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.035**	0.013	0.020
Ammonia as N	as N mg/L	0.10	NO	-	0.40	0.15	0.51	0.44	0.38	0.24	<0.03	0.34	0.26	0.26	0.30	0.31	0.21	0.2	0.20	0.20	0.20
Unionized Ammonia (calculated)	mg/L as N		0.02	-	-	0.002	0.001	0.011	0.016	0.009	<0.001	0.004	0.009	0.010	0.015	0.006	0.006	0.002	0.004	0.004	0.002
Calcium	µg/L	10	NO	113000	128000	130000	156000	123000	125000	127000	129000	126000	-	110000	120000	140000	96000	132000	114000	123000	111000
Magnesium	µg/L	1	NO	12200	14000	15100	16900	12500	14700	14000.0	15800.0	17500.0	-	14000.0	14000.0	16000	16000	15800	15700	16200	15700
Sodium	µg/L	10	NO	216000	428000	221000	369000	696000	258000	216000	169000	239000	-	260000	370000	480000	190000	315000	264000	249000	270000
Potassium	µg/L	9	NO	3110	3000	2800	3190	3210	2990	3390	2260	3260	-	2600.00	3000.00	3900	4000	3560	2980	2900	2730

Notes:

1. NO = No objective
2. mg/L = Milligrams per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 4
Surface Water Analytical Results
Metals and Inorganics
City of Barrie Bunker's Creek Historical Waste Sites

Monitoring Well Location				SWB5																		Field Blank
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 14:15	03-Sep-25 08:30
Parameter	Units	RDL	PWQO																Field Duplicate of SWB5				
Dissolved Metals																							
Aluminum-dissolved	µg/L	1	75	<4	50	40	4	6	<1	<1	<1	<1	<5	6	11	6	12	9	10	4	3	3	1
Aluminum (total)	µg/L	1	NO	-	-	70	-	-	347	-	-	-	24	33	290	75	29	99	32	158	11	27	< 1
Antimony	µg/L	0.9	20	<3	<0.5	<0.1	<0.5	<0.0025	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	100	<3	<1	0.4	<1	<5	<1	1	<1	<1	<1.0	<1	<1.0	<1.0	<1.0	0.2	< 0.2	0.8	< 0.2	0.2	< 0.2
Barium	µg/L	0.08	NO	102	120	154	127	153	148	140	139	133	140	120	120	150	120	147	139	217	149	144	0.49
Beryllium	µg/L	0.007	11	<1	<0.5	<0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.40	<0.40	<0.40	<0.40	< 0.007	< 0.007	0.009	< 0.007	< 0.007	< 0.007
Total Bismuth (Bi)	µg/L	0.01	NO	-	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	-	-	-	< 0.01	< 0.01	< 0.01
Boron	µg/L	2	200	11	<10	16	15	<50	82	30	19	13	24	14	17	17	16	21	15	15	18	18	< 2
Cadmium	µg/L	0.003	0.2	<0.1	<0.1	0.12	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	0.004	0.006	0.024	0.003	0.003	< 0.003
Chromium	µg/L	0.08	NO	12	3	4.9	8	<5	<1	1	<1	<1	<5.0	<5	<5.0	<5.0	<5.0	1.74	0.91	1.03	0.70	0.96	0.13
Cobalt	µg/L	0.004	0.9	<0.5	0.4	0.1	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.50	<0.50	<0.50	0.164	0.140	0.131	0.081	0.106	< 0.004
Copper	µg/L	1	5	<2	2	**10.0**	1.1	<2.5	<0.5	0.8	<0.5	1.1	<1.0	<0.90	1.8	1.6	3.0	1.5	1.8	2.5	< 1	1	< 1
Iron	µg/L	7	300	**604**	**540**	**605**	**511**	**1040**	**586**	**431**	**564**	**521**	**470**	**630**	**950**	**730**	**440**	**1120**	**407**	**1650**	279	297	< 7
Lead	µg/L	0.09	5	1	<1	1.42	0.1	1.2	0.2	<0.1	<0.1	0.1	<0.50	<0.50	1.4	<0.50	<0.50	0.15	< 0.09	0.78	< 0.09	0.17	0.15
Total Lithium (Li)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	<5	<5.0	<5.0	<5.0	2.7	2.6	3.0	2.0	2.3	< 0.1
Manganese	µg/L	0.0	NO	81	100	64	95	168	61	42	58	60	53	58	93	84	54	71.3	49.1	97.7	29.0	30.1	0.0
Molybdenum	µg/L	0.40	40	<2	<5	1.5	<0.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.5	1.4	0.61	0.69	0.36	0.40	0.49	0.40	0.40	< 0.4
Nickel	µg/L	0.10	25	<3	<5	<10	4	<5	<1	<1	<1	1.0	<1.0	<1.0	1.0	1.1	<1.0	0.8	0.8	0.6	0.50	0.60	< 0.1
Selenium	µg/L	0.04	100	<4	<1	<1	<1	<5	<1	2	<1	<1	<2.0	<2.0	<2.0	<2.0	<2.0	0.28	0.38	0.20	0.296	0.35	< 0.04
Total Silicon (Si)	µg/L	20	NO	-	-	-	-	-	-	-	-	-	-	4200	5100	4500	4200	4820	4780	9140	5230	5060	< 20
Silver	µg/L	0.05	0.1	<0.1	<0.1	0.02	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.09	<0.090	<0.090	<0.090	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Strontium	µg/L	0.08	NO	521	684	636	0.568	1010	628	562	600	521	570	500	530	790	640	829	805	409	526	530	0.24
Total Tellurium (Te)	µg/L	0.1	NO	-	-	-	-	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Thallium	µg/L	0.005	0.3	<0.3	<0.1	<0.05	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.050	<0.05	<0.050	<0.050	<0.050	-	-	0.005	< 0.005	< 0.005	< 0.005
Total Tin (Sn)	µg/L	0.06	NO	-	-	-	-	-	<5	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	-	-	0.3	0.09	< 0.06
Titanium	µg/L	0.10	NO	4	<10	<5	<5	<25	<5	<5	<5	<5	<5.0	<5.0	18	6.0	<5.0	1.88	1.36	9.19	0.60	1.40	< 0.1
Tungsten	µg/L	0.02	30	<10	<5	20	<10	<50	<10	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	0.10	0.14	0.06	0.034	< 0.2	< 0.2
Uranium	µg/L	0.00	5	<2	1	1.72	1.4	1.3	1.5	1.4	1.5	1.3	1.3	1.2	2.9	1.4	1.0	1.066	1.181	0.631	1.20	1.06	< 0.002
Vanadium	µg/L	0.01	6	**8**	1	0.8	4.2	<2.5	0.9	0.9	0.9	1.0	1.1	1.1	2.3	1.4	1.3	0.97	1.09	1.1	0.80	0.99	< 0.01
Zinc	µg/L	2	30	16	<10	13	<5	**34**	<5	<5	<5	15	<5.0	<5.0	<5.0	5.9	<5.0	4	3	9	< 2	4.0	< 2
Zirconium	µg/L	2	4	<4	<2	<3	<1	<5	<1	<1	<1	<1	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	-	< 2	< 2	< 2
Dissolved Mercury	µg/L	0.01	0.2	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	-	<0.10	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Inorganics																							
Electrical Conductivity	uS/cm	2	NO	1520	2560	1410	2260	5360	1910	1800	1900	1890	2000	1900	2100	2900	2000	2490	2510	1060	1750	1780	18
pH	No unit	0.05	6.5:8.5	8.38	8	7.80	7.78	7.42	7.91	7.93	7.83	7.80	8.20	8.28	8.37	8.18	8.17	8.21	8.23	8.37	8.23	8.08	6.21
Total Hardness (as CaCO3)	mg/L	0.05	NO	327	366	359	449	337	372	386	390	371	430	320	320	380	320	-	-	298	338	343	< 0.05
Alkalinity (as CaCO3)	mg/L as CaCO3	2	NO	252	254	259	298	271	268	258	265	245	260	240	220	260	210	233	236	221	220	218	7
Chloride	mg/L	0.04	NO	389	642	358	469	1260	410	421	417	389	440	430	510	770	470	660	670	260	600	440	3.8
Sulphate	mg/L	0.04	NO	33.5	38	40	40	50	30	38.1	35.9	33.6	31	28	30	40	28	48	50	26	29	31	< 0.2
Phosphorus (total)	mg/L	0.003	0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.042**	0.010	0.017	< 0.003
Ammonia as N	as N mg/L	0.10	NO	-	0.14	<0.03	0.25	0.28	0.12	0.06	0.11	0.080	0.080	0.14	0.13	0.11	0.13	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Unionized Ammonia (calculated)	mg/L as N		0.02	-	0.001	<0.001	0.001	0.006	0.005	0.003	0.002	0.001	0.003	0.007	0.009	0.002	0.005	< 0.001	< 0.001	0.002	< 0.002	< 0.001	< 0.001
Calcium	µg/L	10	NO	110000	125000	133000	151000	116000	124000	130000	131000	122000	-	110000	110000	140000	110000	127000	127000	90200	110000	111000	< 10
Magnesium	µg/L	1	NO	12600	13000	15600	17200	11100	14700	14700	15300	15900	-	13000	13000	16000	15000	15100	15000	17700	15300	15900	3
Sodium	µg/L	10	NO	192000	416000	212000	355000	801000	233000	215000	240000	221000	-	240000	320000	470000	280000	395000	397000	99200	223000	263000	20
Potassium	µg/L	9	NO	2690	3000	2700	3100	3050	2730	3350	2800	2860	-	2400	2600	4100	4900	3540	3570	2390	2690	2650	< 9

Notes:

1. NO = No objective
2. mg/L = Milligrams per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location				SWB1																			
Sampling Date				08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	15-Sep-17	07-Sep-18	05-Sep-19	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 12:00	03-Sep-25 00:00
Parameter	Units	RDL	PWQO									Field Duplicate of SWB1			Field Duplicate of SWB1					Field Duplicate of SWB1					Field Duplicate of SWB1
VOC																									
Acetone	µg/L	30	NO	<1.0	<50	< 30	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	<10	<10	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	100	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.17	<0.17	<0.17	<0.17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	200	<0.20	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	60	<0.10	<0.4	< 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	0.9	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	NO	<0.20	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	15	<0.10	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	NO	<0.20	<0.2	-	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	<0.20	-	-	-	-	-	-	-
Chloroform	µg/L	0.5	NO	<0.20	<0.5	< 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	µg/L	0.2	700	<0.40	<0.2	-	<3.0	<3.0	<3.0	<3.0	-	-	-	-	-	-	-	<0.20	-	-	-	-	-	-	-
Dibromochloromethane	µg/L	0.5	40	<0.10	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	2.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	2.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	4	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	NO	<0.20	<0.5	< 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	200	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	100	<0.20	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	40	<0.30	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	200	0.98	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	200	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	0.7	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	NO	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	8	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	5	<0.10	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	NO	<0.20	<5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	µg/L	0.5	100	<0.30	<4.0	< 5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	NO	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	400	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	<10	<10	< 20	< 20	< 20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	200	<0.20	<10	< 2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2	< 2	< 2
Styrene	µg/L	0.5	4	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	20	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	70	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	50	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	0.8	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	10	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	800	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	20	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	3	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	<0.50	-	-	-	-	-	-	-
Vinyl Chloride	µg/L	0.2	600	<0.17	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.28	0.29	<0.20	0.23	0.46	<0.20	<0.20	0.4	< 0.2	< 0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	32	<0.20	<0.5	< 1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	40	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	NO	<0.20	<1.0	< 1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	NO	<0.40	<0.5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5	< 5	< 5
Petroleum Hydrocarbons																									
F1 (C6 to C10) minus BTEX	ug/L	25	NO	-	<100	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	< 25	< 25	< 25	< 25	< 25
F2 (C10 to C16) minus Naphthalene	ug/L	100	NO	-	<100	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
F3 (C16-C34)	ug/L	200	NO	<200	<400	<100	<100	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200	< 200
F4 (C34-C50)	ug/L	200	NO	<200	<400	<100	<100	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200	< 200

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline only)
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location			SWB2																	
Sampling Date			08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16		15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 12:45
Parameter	Units	RDL								Field Duplicate of SWB2											
VOC																					
Acetone	µg/L	30	<1.0	<50	< 30	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<10	<10	<10	<10	<10	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.17	<0.17	<0.17	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	<0.20	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	<0.10	<0.4	< 5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	<0.20	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	<0.10	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	<0.20	<0.2	-	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	<0.20	-	-	-	-	-
Chloroform	µg/L	0.5	<0.20	<0.5	< 1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	µg/L	0.2	<0.40	<0.2	-	<3.0	<3.0	<3.0	<3.0	-	-	-	-	-	-	<0.20	-	-	-	-	-
Dibromochloromethane	µg/L	0.5	<0.10	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	<0.20	<0.5	< 2	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	<0.20	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	<0.30	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	-	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	<0.10	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	<0.20	<5	< 5	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1	< 1	< 1	< 1
Methylene Chloride	µg/L	0.5	<0.30	<4.0	< 5	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	-	<5.0	<5.0	<10	<10	<10	<10	<10	< 20	< 20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	<0.20	<10	< 2	<2.0	<2.0	<2.0	<2.0	-	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2	< 2
Styrene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	<0.50	-	-	-	-	-
Vinyl Chloride	µg/L	0.2	<0.17	0.9	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	<0.20	<0.5	< 1.0	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	<0.20	<1.0	< 1.1	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	<0.40	<0.5	< 5	<1.0	<1.0	<1.0	<1.0	-	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5	< 5
Petroleum Hydrocarbons																					
F1 (C6 to C10) minus BTEX	ug/L	25	-	<100	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	< 25	< 25	< 25	< 25
F2 (C10 to C16) minus Naphthalene	ug/L	100	-	<100	<50	<100	<236	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100
F3 (C16-C34)	ug/L	200	<200	<400	<100	<236	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200
F4 (C34-C50)	ug/L	200	<200	<400	<100	<236	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guidelin
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location			SWB3																						
Sampling Date			08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15		07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	11-Sep-20	17-Sep-21	11-Apr-22	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	30-Aug-23	30-Aug-23	13-Sep-24	13-Sep-24	03-Sep-25 13:15
Parameter	**Units**	**RDL**							**Field Duplicate of SWB3**						**Field Duplicate of SWB3**			**Field Duplicate of SWB3**				**Field Duplicate of SWB3**	**PHC Re-Analysis**		**Field Duplicate of SWB3**	
VOC																									
Acetone	µg/L	30	<1.0	<50	< 30	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	<10	<10	< 30	< 30	< 30	-	< 30	< 30	< 30
Benzene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.17	<0.17	<0.17	<0.17	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	<0.20	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	<0.10	<0.4	< 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	<0.20	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	-	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	<0.10	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	<0.20	<0.2	-	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	<0.20	<0.20	-	-	-	-	-	-	-	-
Chloroform	µg/L	0.5	<0.20	<0.5	< 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Chloromethane	µg/L	0.2	<0.40	<0.2	-	<3.0	<3.0	<3.0	<3.0	<3.0	-	-	-	-	-	-	<0.20	<0.20	-	-	-	-	-	-	-	-
Dibromochloromethane	µg/L	0.5	<0.10	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	<0.20	<0.5	< 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2	-	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	<0.20	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	<0.30	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	<0.10	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	-	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	<0.20	<5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1	< 1	< 1	-	< 1	< 1	< 1
Methylene Chloride	µg/L	0.5	<0.30	<4.0	< 5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20	-	< 20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	<10	<10	< 20	< 20	< 20	-	< 20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	<0.20	<10	< 2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2	-	< 2	< 2	< 2
Styrene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	<0.20	0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	<0.50	<0.50	-	-	-	-	-	-	-	-
Vinyl Chloride	µg/L	0.2	<0.17	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	-	< 0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	<0.20	<0.5	< 1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	<0.20	<1.0	< 1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	-	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	<0.40	<0.5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5	-	< 5	< 5	< 5
Petroleum Hydrocarbons																										
F1 (C6 to C10) minus BTEX	ug/L	25	-	<100	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	< 25	< 25	< 25	-	< 25	< 25	< 25
F2 (C10 to C16) minus Naphthalene	ug/L	100	-	<100	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
F3 (C16-C34)	ug/L	200	<200	<400	<100	<100	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	<200	<200	< 200	< 200	370	< 200	< 200	< 200	< 200
F4 (C34-C50)	ug/L	200	<200	<400	<100	<100	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200	< 200	< 200	< 200

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guidelin
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location			SWB4																
Sampling Date			08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 13:45
Parameter	**Units**	**RDL**																	
VOC																			
Acetone	µg/L	30	<1.0	<50	< 30	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.17	<0.17	<0.17	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	<0.20	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	0.74	< 0.5	< 0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	<0.10	<0.4	< 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	<0.20	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	<0.10	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	<0.20	<0.2	-	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	<0.20	-	-	-	-	-
Chloroform	µg/L	0.5	<0.20	<0.5	< 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	1.2	< 0.5	< 0.5	< 0.5	< 0.5
Chloromethane	µg/L	0.2	<0.40	<0.2	-	<3.0	<3.0	<3.0	<3.0	-	-	-	-	-	<0.20	-	-	-	-	-
Dibromochloromethane	µg/L	0.5	<0.10	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	0.58	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	<0.20	<0.5	< 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	<0.20	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	<0.30	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	<0.10	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	<0.20	<5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1	< 1	< 1	< 1
Methylene Chloride	µg/L	0.5	<0.30	<4.0	< 5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	< 20	< 20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	<0.20	<10	< 2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2	< 2
Styrene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	<0.50	-	-	-	-	-
Vinyl Chloride	µg/L	0.2	<0.17	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	<0.20	<0.5	< 1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	<0.20	<1.0	< 1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	<0.40	<0.5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5	< 5
Petroleum Hydrocarbons																				
F1 (C6 to C10) minus BTEX	ug/L	25	-	<100	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	< 25	< 25	< 25	< 25
F2 (C10 to C16) minus Naphthalene	ug/L	100	-	<100	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100
F3 (C16-C34)	ug/L	200	-	<200	<400	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200
F4 (C34-C50)	ug/L	200	-	<200	<400	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guidelin
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location			SWB5																	
Sampling Date			08-Nov-12	23-Apr-13	23-Aug-13	10-Dec-13	26-Nov-14	24-Sep-15	07-Sep-16	15-Sep-17	07-Sep-18	05-Sep-19	11-Sep-20	17-Sep-21	11-Apr-22	30-Sep-22	26-Apr-23	26-Apr-23	30-Aug-23	13-Sep-24	03-Sep-25 14:15
Parameter	**Units**	**RDL**																**Field Duplicate of SWB5**			
VOC																					
Acetone	µg/L	30	<1.0	<50	< 30	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	< 30	< 30	< 30	< 30	< 30
Benzene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.17	<0.17	<0.17	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	<0.20	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	1.7	< 0.5	< 0.5
Bromoform	µg/L	0.5	<0.10	<0.4	< 5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	<0.20	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	<0.10	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	<0.20	<0.2	-	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	<0.20	-	-	-	-	-	-
Chloroform	µg/L	0.5	<0.20	<0.5	< 1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	4.2	< 0.5	< 0.5
Chloromethane	µg/L	0.2	<0.40	<0.2	-	<3.0	<3.0	<3.0	<3.0	-	-	-	-	-	<0.20	-	-	-	-	-	-
Dibromochloromethane	µg/L	0.5	<0.10	<0.3	< 2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	0.6	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	<0.10	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	<0.20	<0.5	< 2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 2	< 2	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	<0.20	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	<0.30	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	<0.10	<0.2	< 0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	<0.20	<5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	< 1	< 1	< 1	< 1	< 1
Methylene Chloride	µg/L	0.5	<0.30	<4.0	< 5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	< 20	< 20	< 20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	<1.0	<10	< 20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<10	<10	<10	<10	< 20	< 20	< 20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	<0.20	<10	< 2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 2	< 2	< 2	< 2	< 2
Styrene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	<0.20	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	<0.30	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	<0.20	<0.4	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	<0.20	<0.3	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	-	<0.3	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	<0.50	-	-	-	-	-	-
Vinyl Chloride	µg/L	0.2	<0.17	<0.2	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	<0.20	<0.5	< 1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	<0.10	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	<0.20	<1.0	< 1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.20	<0.20	<0.20	<0.20	<0.20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	<0.40	<0.5	< 5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	< 5	< 5	< 5	< 5	< 5
Petroleum Hydrocarbons																					
F1 (C6 to C10) minus BTEX	ug/L	25	-	<100	<50	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	< 25	< 25	< 25	< 25	< 25
F2 (C10 to C16) minus Naphthalene	ug/L	100	-	<100	<50	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	< 100	< 100	< 100	< 100	< 100
F3 (C16-C34)	ug/L	200	-	<200	<400	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200	< 200
F4 (C34-C50)	ug/L	200	-	<200	<400	<100	<100	<100	<100	<100	<100	<200	<200	<200	<200	<200	< 200	< 200	< 200	< 200	< 200

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guidelin
5. Bold type and shaded indicates an exceedance of the PWQO

Table 5
Surface Water Analytical Results
VOC and Petroleum Hydrocarbons
City of Barrie Bunker's Creek Historical Waste Sites

Surface Water Location			FIELD BLANK	Trip Blank
Sampling Date			03-Sep-25 08:30	29-Aug-25 00:00
Parameter	Units	RDL		
VOC				
Acetone	µg/L	30	< 30	< 30
Benzene	µg/L	0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.5	< 0.5	< 0.5
Bromoform	µg/L	0.5	< 0.5	< 0.5
Bromomethane	µg/L	0.5	< 0.5	< 0.5
Carbon Tetrachloride	µg/L	0.2	< 0.2	< 0.2
Chlorobenzene	µg/L	0.5	< 0.5	< 0.5
Chloroethane	µg/L	1	-	-
Chloroform	µg/L	0.5	< 0.5	< 0.5
Chloromethane	µg/L	0.2	-	-
Dibromochloromethane	µg/L	0.5	< 0.5	< 0.5
1,2-Dichlorobenzene	µg/L	0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	< 0.5	< 0.5
1,2 - Dichloroethane	µg/L	0.5	< 0.5	< 0.5
1,1 Dichloroethylene	µg/L	0.5	< 0.5	< 0.5
cis- 1,2-Dichloroethylene	µg/L	0.5	< 0.5	< 0.5
trans- 1,2-Dichloroethylene	µg/L	0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	< 0.5	< 0.5
1,3-Dichloropropene (Cis + Trans)	µg/L	0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	< 0.5	< 0.5
Ethylene Dibromide	µg/L	0.2	< 0.2	< 0.2
n-Hexane	µg/L	1	< 1	< 1
Methylene Chloride	µg/L	0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	µg/L	20	< 20	< 20
Methyl Ethyl Ketone	µg/L	20	< 20	< 20
Methyl tert-butyl ether	µg/L	2	< 2	< 2
Styrene	µg/L	0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	< 0.5	< 0.5
1,3,5-Trimethylbenzene	µg/L	0.5	-	-
Vinyl Chloride	µg/L	0.2	< 0.2	< 0.2
m & p-Xylene	µg/L	0.5	< 0.5	< 0.5
o-Xylene	µg/L	0.5	< 0.5	< 0.5
Xylene Mixture (Total)	µg/L	0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5	< 5	< 5
Petroleum Hydrocarbons				
F1 (C6 to C10) minus BTEX	ug/L	25	< 25	---
F2 (C10 to C16) minus Naphthalene	ug/L	100	< 100	---
F3 (C16-C34)	ug/L	200	< 200	---
F4 (C34-C50)	ug/L	200	< 200	---

Notes:

1. NO = No objective
2. ug/L = Micrograms per Litre
3. RDL = Laboratory Reportable Detection Limit
4. PWQO = Provincial Water Quality Objectives, July, 1994 (* = interim guideline
5. Bold type and shaded indicates an exceedance of the PWQO

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B1	2.80	Site 1	28-Jun-12	0.0	5.6	13.7	80.4
GP-B1		Site 1	18-Oct-12	0.0	6.6	13.7	79.7
GP-B1	2.80	Site 1	03-Dec-12	0.0	7.8	11.9	80.3
GP-B1	2.80	Site 1	18-Dec-12	0.0	6.0	13.8	80.2
GP-B1	2.80	Site 1	04-Apr-13	0.0	5.3	13.1	81.6
GP-B1	2.80	Site 1	20-Jun-13	0.0	5.7	13.5	80.8
GP-B1	2.80	Site 1	22-Aug-13	0.0	6.0	15.4	78.6
GP-B1	2.80	Site 1	10-Oct-13	0.1	6.6	14.9	78.4
GP-B1	2.80	Site 1	12-Dec-13	0.0	3.3	20.5	76.0
GP-B1	2.80	Site 1	12-Feb-14	0.0	8.0	15.9	76.1
GP-B1	2.80	Site 1	27-Nov-14	0.0	8.0	15.9	76.1
GP-B2	2.80	Site 1	11-Mar-15	0.0	2.6	20.4	77.0
GP-B1	2.80	Site 1	18-Sep-15	0.0	8.1	14.6	77.3
GP-B1	2.70	Site 1	14-Mar-16	0.0	3.2	18.1	78.7
GP-B1	2.78	Site 1	28-Feb-17	0.0	4.2	16.2	79.6
GP-B1	2.80	Site 1	23-Feb-18	0.1	1.3	20.3	78.3
GP-B1	2.80	Site 1	01-Apr-19	0.0	0.7	19.7	79.6
GP-B1	2.80	Site 1	20-Aug-19	0.1	6.1	14.5	79.3
GP-B1	2.72	Site 1	13-Feb-20	0.0	0.0	20.6	79.4
GP-B1	2.80	Site 1	03-Feb-21	0.0	6.8	14.7	78.6
GP-B1	2.80	Site 1	24-Feb-22	0.0	5.3	16.8	77.9
GP-B1	2.80	Site 1	20-Mar-23	0.0	6.1	14.2	79.7
GP-B1	2.80	Site 1	22-Feb-24	0.0	0.1	20.5	79.4
GP-B1		Site 1	19-Sep-24	Destroyed in Fire/Decommissioned			
GP-B2		Site 1	18-Oct-12	**12.6**	3.7	9.0	74.7
GP-B2		Site 1	24-Oct-12	**15.4**	4.0	6.7	74.0
GP-B2	1.77	Site 1	03-Dec-12	**19.9**	3.9	3.7	72.5
GP-B2	2.90	Site 1	18-Dec-12	**21.5**	4.2	1.6	72.6
GP-B2	2.90	Site 1	23-Apr-13	**15.3**	2.9	6.6	75.4
GP-B2		Site 1	20-Jun-13	Well Damaged- No Reading Taken			
GP-B2	2.90	Site 1	22-Aug-13	**15.3**	4.1	7.4	73.4
GP-B2	2.90	Site 1	10-Oct-13	**21.4**	5.4	3.0	70.1
GP-B2	2.90	Site 1	12-Dec-13	4.5	1.0	18.8	75.8
GP-B2		Site 1	12-Feb-14	Well Buried- No Reading Taken			
GP-B2		Site 1	25-Nov-14	Well Damaged- No Reading Taken			
GP-B2		Site 1	11-Mar-15	Well Damaged- No Reading Taken			
GP-B2		Site 1	18-Sep-15	Could not locate			
GP-B2		Site 1	14-Mar-16	Could not locate			
GP-B2		Site 1	06-Jul-16	Gas Probe Decommissioned			

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	Water (mbgs)	Site	Sample Date	CH4 (%)	CO2 (%)	O2 (%)	Bal. (%)
GP-B3	2.10	Site 2	28-Jun-12	0.0	1.3	18.1	80.1
GP-B3		Site 2	18-Oct-12	0.0	1.7	18.7	79.6
GP-B3	2.10	Site 2	03-Dec-12	0.0	2.1	19.2	78.7
GP-B3	2.10	Site 2	18-Dec-12	0.0	2.2	19.0	78.8
GP-B3	2.10	Site 2	04-Apr-13	0.0	2.5	17.1	80.2
GP-B3	2.10	Site 2	20-Jun-13	0.0	2.8	18.2	79.0
GP-B3	2.10	Site 2	22-Aug-13	0.0	3.6	18.3	78.1
GP-B3	2.10	Site 2	10-Oct-13	0.0	0.5	21.4	78.1
GP-B3	2.10	Site 2	12-Dec-13	0.0	3.0	20.5	76.5
GP-B3	2.10	Site 2	12-Feb-14	0.0	3.0	20.2	76.8
GP-B3	2.10	Site 2	27-Nov-14	0.0	2.2	20.4	77.4
GP-B3	2.10	Site 2	12-Mar-15	0.0	0.9	22.1	77.0
GP-B3	2.10	Site 2	18-Sep-15	0.0	2.5	19.9	77.6
GP-B3	2.10	Site 2	14-Mar-16	0.0	2.0	19.5	78.5
GP-B3	2.10	Site 2	28-Feb-17	0.0	1.7	19.2	79.1
GP-B3	1.78	Site 2	28-Feb-18	0.1	0.4	19.2	80.3
GP-B3	2.03	Site 2	01-Apr-19	0.0	0.4	20.1	79.5
GP-B3	2.10	Site 2	20-Aug-19	0.1	4.1	16.1	79.7
GP-B3	1.99	Site 2	13-Feb-20	0.0	0.1	20.8	79.1
GP-B3	2.10	Site 2	03-Feb-21	0.0	1.5	20.5	78.0
GP-B3	2.10	Site 2	24-Feb-22	0.0	2.2	19.0	78.8
GP-B3	2.10	Site 2	20-Mar-23	0.0	0.4	20.8	78.8
GP-B3	2.10	Site 2	22-Feb-24	0.0	0.0	21.1	78.9
GP-B3	2.10	Site 2	19-Sep-24	0.0	1.6	19.9	78.5
GP-B3	2.10	Site 2	27-Jan-25	0.0	1.3	21.3	77.3
GP-B4	0.81	Site 2	21-Mar-12	0.0	0.4	19.1	80.5
GP-B4	1.22	Site 2	28-Jun-12	0.0	5.9	12.0	81.6
	1.29	Site 2	17-Sep-12	-	-	-	-
GP-B4		Site 2	18-Oct-12	0.0	4.1	15.2	80.7
GP-B4	0.78	Site 2	03-Dec-12	0.0	0.1	21.2	78.7
GP-B4	0.90	Site 2	18-Dec-12	0.0	0.3	21.1	78.6
GP-B4	0.78	Site 2	04-Apr-13	0.0	0.0	21.5	78.5
GP-B4	1.11	Site 2	20-Jun-13	0.0	4.1	15.6	80.3
GP-B4	1.38	Site 2	22-Aug-13	0.0	6.3	14.8	78.9
GP-B4	1.02	Site 2	10-Oct-13	0.0	6.1	15.1	78.8
GP-B4	1.02	Site 2	12-Dec-13	0.0	1.6	20.5	77.9
GP-B4	1.25	Site 2	12-Feb-14	0.0	5.9	16.1	78.0
GP-B4	0.82	Site 2	27-Nov-14	0.0	0.2	21.9	77.9
GP-B4	0.62	Site 2	11-Mar-15	0.0	0.9	21.3	77.8
GP-B4	1.19	Site 2	18-Sep-15	0.0	8.6	14.6	76.8
GP-B4	0.47	Site 2	14-Mar-16	0.0	0.1	22.6	77.3
GP-B4	0.61	Site 2	28-Feb-17	0.0	0.1	21.8	78.1
GP-B4	0.55	Site 2	28-Feb-18	0.1	0.1	20.6	79.2
GP-B4	1.22	Site 2	28-Jan-25	0.0	1.5	19.1	79.4

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B5	1.85	Site 3	21-Mar-12	0.0	1.4	16.9	81.6
GP-B5		Site 3	22-Mar-12	0.0	2.1	14.1	83.8
GP-B5		Site 3	28-Jun-12	0.0	1.0	17.3	81.7
GP-B5		Site 3	17-Sep-12	-	-	-	-
GP-B5		Site 3	18-Oct-12	2.1	8.7	1.1	88.1
GP-B5		Site 3	19-Oct-12	0.1	7.6	3.3	88.9
GP-B5		Site 3	24-Oct-12	1.5	8.5	0.0	90.0
GP-B5	1.91	Site 3	03-Dec-12	1.2	6.4	1.5	90.9
GP-B5	1.88	Site 3	18-Dec-12	1.3	6.2	1.2	91.3
GP-B5	1.83	Site 3	04-Apr-13	0.0	4.9	0.3	94.8
GP-B5	1.92	Site 3	20-Jun-13	0.0	3.5	12.8	83.7
GP-B5	2.10	Site 3	22-Aug-13	0.5	10.1	0.9	88.5
GP-B5	1.91	Site 3	10-Oct-13	0.0	1.1	19.2	79.7
GP-B5	1.93	Site 3	12-Dec-13	1.7	6.1	8.1	84.1
GP-B5	2.02	Site 3	12-Feb-14	0.0	5.0	2.9	92.1
GP-B5	1.94	Site 3	27-Nov-14	2.7	7.3	0.3	89.7
GP-B5	1.42	Site 3	11-Mar-15	0.1	4.5	1.5	93.9
GP-B5	1.97	Site 3	18-Sep-15	0.4	10.8	1.2	87.6
GP-B5	1.74	Site 3	14-Mar-16	0.0	4.1	2.4	93.5
GP-B5	1.66	Site 3	28-Feb-17	0.0	3.9	5.2	90.9
GP-B5	0.35	Site 3	20-Dec-17	0.2	5.1	4.2	90.5
GP-B5	2.10	Site 3	28-Feb-18	0.1	3.7	4.0	92.2
GP-B5	2.14	Site 3	27-Jan-25	0.0	4.2	4.3	91.6
GP-B6	0.41	Site 7	21-Mar-12	0.2	0.0	16.9	82.8
GP-B6		Site 7	22-Mar-12	0.1	0.0	15.8	84.1
GP-B6		Site 7	28-Jun-12	0.0	0.7	18.4	80.8
GP-B6		Site 7	17-Sep-12	-	-	-	-
GP-B6		Site 7	18-Oct-12	**61.8**	11.4	6.3	20.5
GP-B6		Site 7	19-Oct-12	**82.3**	14.8	1.4	1.5
GP-B6		Site 7	24-Oct-12	**84.0**	15.6	0.3	0.1
GP-B6	0.65	Site 7	03-Dec-12	**33.2**	0.8	12.9	53.1
GP-B6	0.51	Site 7	18-Dec-12	**14.4**	1.8	17.8	66.0
GP-B6	0.32	Site 7	04-Apr-13	1.6	0.2	20.3	78.0
GP-B6	0.59	Site 7	20-Jun-13	0.1	4.5	15.4	80.1
GP-B6		Site 7	22-Aug-13	0.0	3.5	16.7	79.8
GP-B6	0.76	Site 7	10-Oct-13	**19.5**	5.6	14.5	60.3
GP-B6	0.71	Site 7	12-Dec-13	3.2	3.6	14.5	78.7
GP-B6	0.86	Site 7	12-Feb-14	**71.3**	9.1	2.0	17.6
GP-B6	0.69	Site 7	27-Nov-14	0.5	2.3	16.2	81.0
GP-B6	0.71	Site 7	11-Mar-15	**15.7**	2.7	18.2	63.4
GP-B6	0.86	Site 7	18-Sep-15	**13.3**	5.7	16.8	64.2
GP-B6	0.24	Site 7	14-Mar-16	0.0	0.1	22.8	77.1
GP-B6	0.30	Site 7	28-Feb-17	0.0	0.1	21.5	78.4
GP-B6	0.46	Site 7	28-Feb-18	0.1	0.2	21.0	78.7
GP-B6	0.52	Site 7	04-Sep-18	**29.4**	1.2	11.3	58.1
GP-B6	0.65	Site 7	27-Jan-25	1.0	0.3	21.9	76.7

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
	-	Site 7	15-Jun-12	0.0	-	-	-
GP-B7		Site 7	28-Jun-12	0.0	0.9	18.2	80.9
GP-B7		Site 7	18-Oct-12	0.0	1.9	19.2	78.9
GP-B7	1.10	Site 7	03-Dec-12	0.0	1.8	19.8	78.4
GP-B7	1.12	Site 7	18-Dec-12	0.0	1.2	20.1	78.7
GP-B7	1.11	Site 7	04-Apr-13	0.0	0.4	20.4	79.2
GP-B7	1.07	Site 7	20-Jun-13	0.0	2.3	17.9	79.8
GP-B7	0.85	Site 7	22-Aug-13	0.0	1.9	19.5	78.6
GP-B7	0.83	Site 7	10-Oct-13	0.0	0.2	21.7	78.1
GP-B7	1.01	Site 7	12-Dec-13	0.0	0.7	20.9	78.4
GP-B7	1.02	Site 7	12-Feb-14	0.0	0.7	20.7	78.6
GP-B7	1.09	Site 7	27-Nov-14	0.0	1.1	21.2	77.7
GP-B7	1.15	Site 7	11-Mar-15	0.0	0.6	21.7	77.7
GP-B7	1.19	Site 7	18-Sep-15	0.0	2.1	19.6	78.3
GP-B7	1.14	Site 7	28-Feb-17	0.0	0.6	20.7	78.7
GP-B7	0.97	Site 7	23-Feb-18	0.0	0.0	21.8	78.2
GP-B7	1.09	Site 7	01-Apr-19	0.1	0.2	20.7	79.0
GP-B7	1.15	Site 7	20-Aug-19	0.1	1.2	17.9	80.8
GP-B7	1.13	Site 7	13-Feb-20	0.0	0.0	19.7	80.3
GP-B7	1.12	Site 7	03-Feb-21	0.0	0.6	20.4	79.0
GP-B7	1.19	Site 7	25-Jan-22	0.0	0.8	21.1	78.1
GP-B7	1.06	Site 7	20-Mar-23	0.0	0.4	21.4	78.2
GP-B7	0.82	Site 7	22-Feb-24	0.0	0.4	21.9	78.2
GP-B7	1.14	Site 7	19-Sep-24	0.0	1.3	19.8	78.8
GP-B7	1.40	Site 7	27-Jan-25	0.0	0.3	22.2	77.4

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B8	3.43	Site 1	03-Dec-12	0.0	12.6	0.5	86.9
GP-B8	3.40	Site 1	18-Dec-12	0.0	2.0	18.0	80.0
GP-B8	3.34	Site 1	04-Apr-13	0.0	10.2	1.2	88.6
GP-B8	3.34	Site 1	20-Jun-13	0.0	2.6	16.8	80.5
GP-B8		Site 1	22-Aug-13	Not Accessible- No Reading Taken			
GP-B8	3.45	Site 1	10-Oct-13	0.1	3.4	17.2	79.3
GP-B8	3.42	Site 1	12-Dec-13	0.1	11.8	8.2	80.0
GP-B8	3.53	Site 1	13-Feb-14	0.0	8.6	9.5	81.9
GP-B8		Site 1	25-Nov-14	Well Damaged- No Reading Taken			
GP-B8	3.65	Site 1	27-Nov-14	0.0	0.1	21.8	78.1
GP-B8	3.59	Site 1	12-Mar-15	0.0	0.1	21.1	78.8
GP-B8	3.53	Site 1	18-Sep-15	0.0	0.7	20.4	78.8
GP-B8		Site 1	14-Mar-16	0.0	2.5	18.8	78.7
GP-B8		Site 1	28-Feb-17	Frozen - No Reading Taken			
GP-B8	0.32	Site 1	20-Mar-17	0.0	0.1	21.3	78.6
GP-B8	3.44	Site 1	28-Feb-18	0.0	0.0	22.5	77.5
GP-B8	1.96	Site 1	01-Apr-19	0.0	0.0	20.9	79.1
GP-B8	3.56	Site 1	20-Aug-19	0.1	0.3	18.6	81.0
GP-B8	1.94	Site 1	13-Feb-20	0.0	0.0	20.7	79.3
GP-B8	3.51	Site 1	24-Feb-21	0.0	0.1	21.0	78.9
GP-B8	3.47	Site 1	17-Feb-22	0.0	12.5	2.5	85.0
GP-B8	3.39	Site 1	20-Mar-23	0.0	6.2	2.3	91.5
GP-B8	3.43	Site 1	22-Feb-24	0.0	5.3	11.2	83.5
GP-B8	3.48	Site 1	19-Sep-24	0.0	8.5	9.2	82.3
GP-B8	3.79	Site 1	28-Jan-25	0.0	12.1	1.9	86.0
GP-B9	1.15	Site 1	03-Dec-12	0.4	0.1	19.9	79.6
GP-B9	1.21	Site 1	18-Dec-12	1.0	0.3	15.4	83.3
GP-B9	1.03	Site 1	04-Apr-13	0.0	0.2	20.3	79.5
GP-B9	1.17	Site 1	20-Jun-13	1.8	1.7	13.1	83.4
GP-B9	1.26	Site 1	22-Aug-13	1.0	0.9	16.7	81.3
GP-B9	1.13	Site 1	10-Oct-13	0.0	0.8	18.3	80.9
GP-B9	1.12	Site 1	12-Dec-13	0.0	0.4	22.1	77.5
GP-B9	1.18	Site 1	25-Feb-14	**6.1**	0.8	17.8	75.7
GP-B9	1.02	Site 1	31-Mar-14	0.2	0.5	19.3	80.0
GP-B9	1.02	Site 1	27-Nov-14	0.2	0.6	20.2	79.0
GP-B9	1.31	Site 1	12-Mar-15	3.4	0.4	18.0	78.2
GP-B9	1.23	Site 1	18-Sep-15	**11.7**	1.6	14.5	72.2
GP-B9	0.80	Site 1	14-Mar-16	0.6	0.3	22.0	77.1
GP-B9	0.71	Site 1	28-Feb-17	0.0	0.1	21.4	78.5
GP-B9	1.07	Site 1	20-Dec-17	3.3	0.6	20.0	76.1
GP-B9	0.95	Site 1	28-Feb-18	0.1	0.1	21.7	78.2
GP-B9	1.42	Site 1	27-Jan-25	0.0	0.1	22.1	77.7

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B10	1.13	Site 1	03-Dec-12	**46.9**	4.6	2.1	46.4
GP-B10	1.10	Site 1	18-Dec-12	**37.9**	5.0	4.3	52.8
GP-B10	1.01	Site 1	04-Apr-13	**32.5**	2.9	9.8	54.9
GP-B10	1.13	Site 1	20-Jun-13	**35.2**	5.2	4.3	55.6
GP-B10	1.32	Site 1	22-Aug-13	**35.2**	6.4	3.7	54.5
GP-B10	1.21	Site 1	10-Oct-13	**28.6**	7.0	2.9	61.4
GP-B10	1.19	Site 1	12-Dec-13	**38.4**	4.7	13.0	53.9
GP-B10	1.33	Site 1	12-Feb-14	**27.3**	4.1	1.2	67.4
GP-B10	1.18	Site 1	27-Nov-14	**69.2**	5.2	0.6	25.0
GP-B10	1.33	Site 1	12-Mar-15	1.1	1.1	20.1	77.7
GP-B10	1.27	Site 1	18-Sep-15	**34.1**	7.6	1.5	56.8
GP-B10	0.89	Site 1	14-Mar-16	**8.0**	0.8	19.8	71.4
GP-B10	0.97	Site 1	28-Feb-17	0.2	0.1	21.2	78.5
GP-B10	0.91	Site 1	20-Dec-17	0.8	5.1	4.1	90.0
GP-B10	1.10	Site 1	28-Feb-18	3.0	2.7	13.2	81.1
GP-B10	1.56	Site 1	27-Jan-25	**13.5**	3.6	5.1	77.6
	Dry	Site 1	17-Sep-12	-	-	-	-
GP-B11	1.41	Site 1	03-Dec-12	0.0	3.2	13.7	83.1
GP-B11	1.41	Site 1	18-Dec-12	0.1	2.9	14.6	82.4
GP-B11	1.30	Site 1	04-Apr-13	0.0	2.1	14.6	83.2
GP-B11	1.40	Site 1	20-Jun-13	0.0	5.7	3.7	90.7
GP-B11	1.50	Site 1	22-Aug-13	0.0	7.5	6.6	86.0
GP-B11	1.44	Site 1	10-Oct-13	0.0	6.6	4.3	89.1
GP-B11	1.50	Site 1	12-Dec-13	0.0	3.0	19.6	77.4
GP-B11	1.63	Site 1	12-Feb-14	0.0	2.1	19.8	78.1
GP-B11	1.39	Site 1	27-Nov-14	0.0	4.4	15.7	79.9
GP-B11	1.49	Site 1	11-Mar-15	0.0	2.4	16.7	80.9
GP-B11	1.56	Site 1	18-Sep-15	0.0	9.5	9.1	81.4
GP-B11	1.27	Site 1	14-Mar-16	0.0	1.5	18.7	79.8
GP-B11	0.31	Site 1	28-Feb-17	0.0	1.3	20.6	78.1
GP-B11	1.16	Site 1	28-Feb-18	0.1	1.6	4.0	84.4
GP-B11	1.66	Site 1	27-Jan-25	0.0	0.2	22.1	77.7

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
	-	Site 2	15-Jun-12	0.0	-	-	-
	-	Site 2	15-Jun-12	0.0	-	-	-
GP-B12	0.77	Site 2	03-Dec-12	0.0	0.1	21.2	78.7
GP-B12	0.84	Site 2	18-Dec-12	0.0	0.1	21.3	78.6
GP-B12	0.75	Site 2	04-Apr-13	0.5	0.1	21.4	78.0
GP-B12	0.86	Site 2	20-Jun-13	0.3	0.2	19.9	79.7
GP-B12	0.90	Site 2	22-Aug-13	4.4	2.0	18.7	74.7
GP-B12	0.83	Site 2	10-Oct-13	**6.4**	2.5	18.8	72.5
GP-B12	0.88	Site 2	12-Dec-13	0.0	0.1	21.1	78.8
GP-B12	0.91	Site 2	12-Feb-14	0.0	0.3	20.7	79.0
GP-B12	0.82	Site 2	27-Nov-14	0.0	0.2	21.9	77.9
GP-B12	0.86	Site 2	11-Mar-15	0.0	0.1	22.7	77.2
GP-B12	0.86	Site 2	18-Sep-15	0.0	0.1	21.5	78.4
GP-B12	0.57	Site 2	14-Mar-16	0.0	0.1	22.7	77.2
GP-B12	0.61	Site 2	28-Feb-17	0.0	0.1	21.8	78.1
GP-B12	0.64	Site 2	28-Feb-18	0.1	0.0	20.7	79.2
GP-B12	0.86	Site 2	27-Jan-25	0.1	0.2	22.1	77.6
GP-B13		Site 2	28-Jun-12	0.0	0.2	18.8	81.0
		Site 2	17-Sep-12	-	-	-	-
GP-B13		Site 2	18-Oct-12	0.0	0.0	20.6	79.4
GP-B13	0.18	Site 2	03-Dec-12	0.0	0.0	21.2	78.8
GP-B13	0.19	Site 2	18-Dec-12	0.0	0.0	21.3	78.7
GP-B13	0.18	Site 2	04-Apr-13	0.0	0.0	21.4	78.6
GP-B13	0.27	Site 2	20-Jun-13	0.0	0.1	20.4	79.5
GP-B13	0.32	Site 2	22-Aug-13	0.0	0.0	21.0	79.0
GP-B13	0.28	Site 2	10-Oct-13	0.0	0.0	21.8	78.2
GP-B13	0.29	Site 2	12-Dec-13	0.0	0.1	21.7	78.2
GP-B13	0.31	Site 2	12-Feb-14	0.0	0.2	20.9	78.9
GP-B13	0.23	Site 2	27-Nov-14	0.0	0.2	21.9	77.9
GP-B13	0.25	Site 2	11-Mar-15	0.0	0.1	22.4	77.5
GP-B13	0.34	Site 2	18-Sep-15	0.0	0.1	21.6	78.3
GP-B13	0.27	Site 2	14-Mar-16	0.0	0.1	22.7	77.2
GP-B13	0.24	Site 2	28-Feb-17	0.0	0.1	21.7	78.2
GP-B13	0.28	Site 2	28-Feb-18	0.1	0.0	20.8	79.1
GP-B13	0.42	Site 2	27-Jan-25	0.0	0.1	22.5	77.3

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
	-	Site 3	15-Jun-12	0.0	-	-	-
GP-B14	1.57	Site 3	03-Dec-12	0.0	0.4	20.5	79.1
GP-B14	1.56	Site 3	18-Dec-12	0.0	0.4	20.5	79.1
GP-B14	1.42	Site 3	04-Apr-13	0.0	0.5	20.3	79.2
GP-B14	1.54	Site 3	20-Jun-13	0.0	1.1	19.3	79.6
GP-B14	1.70	Site 3	22-Aug-13	0.0	0.7	20.5	78.8
GP-B14	1.59	Site 3	10-Oct-13	0.0	0.7	20.7	78.6
GP-B14	1.57	Site 3	12-Dec-13	0.0	0.5	20.9	78.6
GP-B14	1.72	Site 3	12-Feb-14	0.0	0.6	21.0	78.4
GP-B14	1.47	Site 3	27-Nov-14	0.0	0.6	21.7	77.7
GP-B14	1.89	Site 3	11-Mar-15	0.0	0.5	21.9	77.6
GP-B14	1.89	Site 3	18-Sep-15	0.0	1.0	20.2	78.8
GP-B14	1.49	Site 3	28-Feb-17	0.0	0.4	21.2	78.4
GP-B14	1.76	Site 3	28-Feb-18	0.1	0.4	19.2	80.3
GP-B14	1.72	Site 3	01-Apr-19	0.0	0.0	20.4	79.6
GP-B14	1.99	Site 3	20-Aug-19	0.0	0.4	18.9	80.7
GP-B14	1.69	Site 3	13-Feb-20	0.0	0.0	20.4	79.6
GP-B14	1.86	Site 3	03-Feb-21	0.0	0.2	21.8	78.0
GP-B14	1.89	Site 3	25-Jan-22	0.0	0.4	21.5	78.1
GP-B14	1.68	Site 3	20-Mar-23	0.0	0.5	20.2	79.3
GP-B14	1.75	Site 3	22-Feb-24	0.0	0.0	20.5	79.5
GP-B14	2.03	Site 3	19-Sep-24	0.0	0.4	20.7	78.8
GP-B14	2.27	Site 3	27-Jan-25	0.0	0.2	22.1	77.6
GP-B17	2.59	Site 3	03-Dec-12	0.0	1.0	20.5	78.5
GP-B17	2.57	Site 3	18-Dec-12	0.0	0.9	20.8	78.3
GP-B17	2.39	Site 3	04-Apr-13	0.0	1.0	18.1	80.9
GP-B17	2.48	Site 3	20-Jun-13	0.0	1.5	19.1	79.4
GP-B17	2.70	Site 3	22-Aug-13	0.0	1.1	20.3	78.6
GP-B17	2.61	Site 3	10-Oct-13	0.0	1.4	20.5	78.1
GP-B17	2.53	Site 3	12-Dec-13	0.0	0.9	20.8	78.3
GP-B17	2.74	Site 3	12-Feb-14	0.0	1.1	22.8	76.1
GP-B17	2.51	Site 3	27-Nov-14	0.0	1.1	21.4	77.5
GP-B17	2.63	Site 3	11-Mar-15	0.0	1.0	21.8	77.2
GP-B17	2.68	Site 3	18-Sep-15	0.0	1.5	20.0	78.5
GP-B17	2.22	Site 3	28-Feb-17	0.0	0.5	21.1	78.4
GP-B17	2.50	Site 3	28-Feb-18	0.1	0.8	18.3	80.8
GP-B17	2.43	Site 3	01-Apr-19	0.0	0.2	20.6	79.2
GP-B17	2.75	Site 3	20-Aug-19	0.1	0.8	18.8	80.3
GP-B17	2.40	Site 3	13-Feb-20	0.0	0.0	20.6	79.4
GP-B17	2.57	Site 3	03-Feb-21	0.0	0.5	21.9	77.6
GP-B17	2.60	Site 3	25-Jan-22	0.0	0.2	21.6	78.2
GP-B17	2.44	Site 3	20-Mar-23	0.0	1.0	18.8	80.2
GP-B17	2.41	Site 3	22-Feb-24	0.0	0.0	21.5	78.5
GP-B17	2.69	Site 3	19-Sep-24	0.2	0.0	20.7	79.1
GP-B17	2.70	Site 3	24-Sep-24	0.3	0.7	20.4	78.6
GP-B17	2.75	Site 3	28-Jan-25	0.0	0.2	22.1	77.7

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B18		Site 7	28-Jun-12	0.0	0.2	19.0	80.8
GP-B18		Site 7	18-Oct-12	0.0	1.3	18.9	79.8
GP-B18	1.69	Site 7	03-Dec-12	0.1	0.8	20.2	78.9
GP-B18	1.69	Site 7	18-Dec-12	0.1	0.8	20.0	79.1
GP-B18	1.54	Site 7	04-Apr-13	0.0	0.9	20.0	79.1
GP-B18	1.64	Site 7	20-Jun-13	0.0	2.1	17.5	80.4
GP-B18		Site 7	22-Aug-13	0.0	1.5	19.8	78.7
GP-B18	1.76	Site 7	10-Oct-13	0.0	1.7	20.0	78.3
GP-B18	1.69	Site 7	12-Dec-13	0.0	0.7	20.8	78.5
GP-B18	1.86	Site 7	12-Feb-14	0.0	0.9	22.7	76.4
GP-B18	1.63	Site 7	27-Nov-14	0.0	0.7	21.5	77.8
GP-B18	1.87	Site 7	11-Mar-15	0.1	0.7	22.1	77.1
GP-B18	1.89	Site 7	18-Sep-15	0.0	1.7	19.3	79.0
GP-B18	1.39	Site 7	28-Feb-17	0.0	0.1	21.5	78.4
GP-B18	1.53	Site 7	28-Feb-18	0.1	0.1	20.6	79.2
GP-B18	1.66	Site 7	01-Apr-19	0.0	0.1	20.7	79.2
GP-B18	1.92	Site 7	20-Aug-19	0.1	0.6	18.6	80.8
GP-B18	1.66	Site 7	13-Feb-20	0.0	0.3	19.5	80.2
GP-B18	1.75	Site 7	03-Feb-21	0.0	0.4	21.9	77.7
GP-B18	1.79	Site 7	25-Jan-22	0.0	0.3	21.4	78.3
GP-B18	1.64	Site 7	20-Mar-23	0.0	0.5	20.3	79.2
GP-B18	1.57	Site 7	22-Feb-24	0.0	0.0	21.5	78.5
GP-B18	1.87	Site 7	19-Sep-24	0.3	0.0	20.6	79.1
GP-B18	1.87	Site 7	24-Sep-24	0.3	0.4	20.1	79.2
GP-B18	2.09	Site 7	27-Jan-25	0.0	0.3	21.9	77.7
GP-B19		Site 7	28-Jun-12	0.0	0.1	18.9	81.0
GP-B19		Site 7	18-Oct-12	0.0	0.0	20.5	79.5
GP-B19	0.51	Site 7	03-Dec-12	0.0	0.0	21.2	78.8
GP-B19	0.55	Site 7	18-Dec-12	0.0	0.1	21.5	78.4
GP-B19	0.59	Site 7	04-Apr-13	0.0	0.0	20.8	79.2
GP-B19	0.67	Site 7	20-Jun-13	0.0	0.0	19.7	80.3
GP-B19	0.98	Site 7	22-Aug-13	0.0	0.9	19.2	79.9
GP-B19	0.82	Site 7	10-Oct-13	0.0	0.1	21.5	78.4
GP-B19	0.80	Site 7	12-Dec-13	0.0	0.1	21.2	78.7
GP-B19	0.85	Site 7	12-Feb-14	0.0	0.2	21.1	78.7
GP-B19	0.76	Site 7	27-Nov-14	0.0	0.2	22.0	77.8
GP-B19	0.75	Site 7	11-Mar-15	0.0	0.1	22.8	77.1
GP-B19	0.97	Site 7	18-Sep-15	0.0	0.1	21.2	78.7
GP-B19	0.68	Site 7	28-Feb-17	0.0	0.1	21.5	78.4
GP-B19	0.70	Site 7	28-Feb-18	0.1	0.0	21.0	78.9
GP-B19	0.59	Site 7	01-Apr-19	0.1	0.1	20.4	79.4
GP-B19	1.00	Site 7	20-Aug-19	0.1	1.6	17.2	81.1
GP-B19	1.08	Site 7	29-Aug-19	0.0	2.0	17.3	80.7
GP-B19	0.80	Site 7	13-Feb-20	0.0	0.0	20.1	79.9
GP-B19	0.87	Site 7	03-Feb-21	0.0	0.0	21.4	78.6
GP-B19	0.89	Site 7	25-Jan-22	0.0	0.1	21.9	78.8
GP-B19	0.77	Site 7	20-Mar-23	0.0	0.0	21.1	78.9
GP-B19	0.76	Site 7	22-Feb-24	0.0	0.0	21.4	78.6
GP-B19	0.95	Site 7	24-Sep-24	0.3	0.0	20.6	79.1
GP-B19	1.17	Site 7	27-Jan-25	0.0	0.1	22.3	77.6

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B20	3.66	Site 1	22-Aug-13	0.0	1.1	19.1	79.8
GP-B20	3.67	Site 1	10-Oct-13	0.0	0.8	20.4	78.9
GP-B20	3.66	Site 1	12-Dec-13	0.0	0.3	22.8	77.2
GP-B20	3.80	Site 1	25-Feb-14	0.0	0.6	21.6	77.8
GP-B20	3.68	Site 1	25-Nov-14	0.0	0.5	20.4	79.1
GP-B20	3.59	Site 1	27-Nov-14	0.0	0.5	21.2	78.3
GP-B20		Site 1	11-Mar-15	Well Buried- No Reading Taken			
GP-B20	3.75	Site 1	18-Sep-15	0.0	1.1	20.2	78.7
GP-B20	3.47	Site 1	28-Feb-17	0.0	0.5	20.6	78.9
GP-B20	3.30	Site 1	23-Feb-18	0.0	0.0	22.6	77.4
GP-B20	3.62	Site 1	01-Apr-19	0.0	0.0	20.6	79.4
GP-B20	3.65	Site 1	20-Aug-19	0.1	0.9	18.4	80.6
GP-B20	3.70	Site 1	29-Aug-19	0.0	1.1	18.2	80.7
GP-B20	3.62	Site 1	13-Feb-20	0.0	0.1	19.8	80.1
GP-B20	3.67	Site 1	03-Mar-21	0.0	0.3	21.3	78.4
GP-B20	3.65	Site 1	24-Feb-22	0.0	0.5	20.0	79.5
GP-B20	3.55	Site 1	20-Mar-23	0.0	0.1	21.3	78.6
GP-B20	3.71	Site 1	22-Feb-24	0.0	0.0	21.4	78.6
GP-B20	3.61	Site 1	19-Sep-24	0.0	0.9	19.1	80.0
GP-B20	3.98	Site 1	28-Jan-25	0.0	0.1	21.9	77.9
GP-B21	3.83	Site 1	22-Aug-13	0.0	1.0	19.9	79.1
GP-B21	3.80	Site 1	10-Oct-13	0.0	0.7	20.8	78.5
GP-B21	3.39	Site 1	12-Dec-13	0.0	0.5	22.7	76.8
GP-B21	3.89	Site 1	12-Feb-14	0.0	0.6	22.6	76.8
GP-B21	3.80	Site 1	27-Nov-14	0.0	0.7	21.5	77.8
GP-B21	3.94	Site 1	12-Mar-15	0.0	0.5	22.2	77.3
GP-B21	3.89	Site 1	18-Sep-15	0.0	0.8	20.2	79.0
GP-B21	3.64	Site 1	28-Feb-17	0.0	0.5	20.5	79.0
GP-B21	3.77	Site 1	23-Feb-18	0.2	0.1	21.4	78.3
GP-B21	3.81	Site 1	01-Apr-19	0.0	0.7	19.1	80.2
GP-B21	4.12	Site 1	20-Aug-19	0.1	0.8	18.7	80.4
GP-B21	3.76	Site 1	13-Feb-20	0.0	0.0	20.6	79.4
GP-B21	3.78	Site 1	03-Feb-21	0.0	0.5	21.3	78.2
GP-B21	4.12	Site 1	25-Jan-22	0.0	0.3	21.3	78.4
GP-B21	4.12	Site 1	20-Mar-23	0.0	0.4	20.3	79.3
GP-B21	4.12	Site 1	22-Feb-24	0.0	0.0	19.5	80.5
GP-B21	4.12	Site 1	19-Sep-24	0.0	0.4	20.1	79.5
GP-B21	4.12	Site 1	27-Jan-25	0.0	0.2	21.9	77.9

Landfill Gas Concentrations (% methane by volume)
Bunker's Creek Landfills

				Landfill Gas Readings - GEM 2000			
Well ID	**Water** (mbgs)	**Site**	**Sample Date**	**CH4 (%)**	**CO2 (%)**	**O2 (%)**	**Bal. (%)**
GP-B22	2.09	Site 1	22-Aug-13	0.0	1.1	19.7	79.2
GP-B22	2.03	Site 1	10-Oct-13	0.1	0.2	21.6	78.1
GP-B22	1.96	Site 1	12-Dec-13	0.0	0.2	20.9	78.9
GP-B22	2.12	Site 1	25-Feb-14	0.0	0.5	22.0	77.5
GP-B22	1.98	Site 1	25-Nov-14	0.0	0.6	21.0	78.4
GP-B22	2.16	Site 1	12-Mar-15	0.0	0.1	21.3	78.6
GP-B22	2.11	Site 1	18-Sep-15	0.0	0.1	20.0	79.9
GP-B22	1.71	Site 1	28-Feb-17	0.0	0.4	21.1	78.5
GP-B22	1.92	Site 1	23-Feb-18	0.0	0.0	21.4	78.6
GP-B22	1.89	Site 1	01-Apr-19	0.0	0.0	20.8	79.2
GP-B22	2.15	Site 1	20-Aug-19	0.0	1.8	17.5	80.7
GP-B22	1.89	Site 1	13-Feb-20	0.0	0.2	19.7	80.1
GP-B22	2.00	Site 1	03-Feb-21	0.0	0.5	20.0	79.5
GP-B22	1.94	Site 1	17-Feb-22	0.0	0.1	21.5	78.4
GP-B22	1.85	Site 1	20-Mar-23	0.0	0.1	21.0	78.9
GP-B22	1.95	Site 1	22-Feb-24	0.0	0.0	20.5	79.5
GP-B22	2.08	Site 1	19-Sep-24	0.0	0.2	20.5	79.3
GP-B22	2.34	Site 1	28-Jan-25	0.0	0.3	21.5	79.3
GP-B24	1.61	Site 1	20-Dec-17	0.0	0.5	20.4	79.1
GP-B24	1.52	Site 1	27-Mar-18	0.0	0.7	19.0	80.3
GP-B24	1.41	Site 1	01-Apr-19	0.0	0.2	20.1	79.7
GP-B24	1.63	Site 1	20-Aug-19	0.1	1.0	17.3	81.6
GP-B24	1.72	Site 1	29-Aug-19	0.0	1.4	18.4	80.2
GP-B24	1.42	Site 1	13-Feb-20	0.0	0.0	20.4	79.6
GP-B24	1.58	Site 1	03-Feb-21	0.0	0.5	21.0	78.5
GP-B24	1.59	Site 1	24-Feb-22	0.0	0.9	18.4	80.7
GP-B24	1.40	Site 1	20-Mar-23	0.0	1.1	18.9	80.0
GP-B24	1.50	Site 1	22-Feb-24	0.0	0.0	20.5	79.5
GP-B24	1.62	Site 1	19-Sep-24	0.0	1.2	19.4	79.4
GP-B24	1.93	Site 1	28-Jan-25	0.0	0.6	21.1	78.3

Notes:
bold and shaded indicates a methane concentration above 5%, the lower explosive limit of methane

APPENDIX A

2025 Sampling Locations

City of Barrie Bunker's Creek Landfills
2025 Sampling Locations and Elevations

Well	Monitoring Pipe Elevations (masl)	Ground Surface Elevations (masl)	Well Screen Elevations (masl)	
			Top of Screen (masl)	Bottom of Screen (masl)
Site 1				
GP-B8	226.65	226.75	225.83	222.79
GP-B20	228.29	228.43	226.90	223.85
GP-B21	228.71	227.66	226.59	223.54
GP-B24	225.39	224.54	223.79	222.27
Site 2				
GP-B3	226.07	225.07	224.46	222.94
GP-B22	225.01	225.11	224.35	221.30
Site 3				
GP-B14	224.81	224.06	223.30	221.77
GP-B17	225.85	224.94	223.87	222.35
Site 7				
GP-B7	221.43	220.34	219.57	218.05
GP-B18	224.53	223.58	222.05	220.53
GP-B19	222.62	221.84	221.08	219.56

APPENDIX B

Groundwater Elevations

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B1	228.52	227.60	3.69	2.78	1.52	226.35	224.83	2012-09-17	dry	dry	NA
								2012-12-03	dry	dry	NA
								2012-12-18	dry	dry	NA
								2013-04-04	dry	dry	NA
								2013-06-20	dry	dry	NA
								2013-08-22	dry	dry	NA
								2013-10-10	dry	dry	NA
								2013-12-12	dry	dry	NA
								2014-02-12	dry	dry	NA
								2014-11-27	dry	dry	NA
								2015-03-11	dry	dry	NA
								2015-09-18	dry	dry	NA
								2016-03-14	3.58	2.70	224.83
								2017-02-28	3.66	2.78	224.75
								2018-02-23	dry	dry	NA
								2018-02-23	dry	dry	NA
								2019-04-01	dry	dry	NA
								2019-08-20	dry	dry	NA
								2020-02-13	3.60	2.72	224.82
								2021-02-03	dry	dry	NA
								2022-02-24	dry	dry	NA
								2023-03-20	dry	dry	NA
								2024-02-22	dry	dry	NA
								2024-09-19	Destroyed in Fire/Decommisioned		
GP-B3	226.03	225.07	3.09	2.13	1.52	224.46	222.94	2012-09-17	dry	dry	NA
								2012-12-03	dry	dry	NA
								2012-12-18	dry	dry	NA
								2013-04-04	dry	dry	NA
								2013-06-20	dry	dry	NA
								2013-08-22	dry	dry	NA
								2013-10-10	dry	dry	NA
								2013-12-12	dry	dry	NA
								2014-02-12	dry	dry	NA
								2014-11-27	dry	dry	NA
								2015-03-12	dry	dry	NA
								2015-09-18	dry	dry	NA
								2016-03-14	dry	dry	NA
								2017-02-28	dry	dry	NA
								2018-02-28	2.73	1.78	223.30
								2019-04-01	2.99	2.03	223.05
								2019-08-20	dry	dry	NA
								2020-02-13	2.95	1.99	223.08
								2021-02-03	dry	dry	NA
								2022-02-24	dry	dry	NA
								2023-03-30	dry	dry	NA
								2024-02-22	dry	dry	NA
								2024-09-19	dry	dry	NA
								2025-01-27	dry	dry	NA

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B4	223.64	222.42	2.44	2.44	1.52	222.72	221.20	2012-03-21	2.03	0.81	221.61
								2012-06-28	2.44	1.22	221.20
								2012-09-17	2.51	1.29	221.13
								2012-12-03	2.00	0.78	221.64
								2012-12-18	2.12	0.90	221.52
								2013-04-04	2.00	0.78	221.64
								2013-06-20	2.33	1.11	221.31
								2013-08-22	2.60	1.38	221.04
								2013-10-10	2.24	1.02	221.40
								2013-12-12	2.24	1.02	221.40
								2014-02-12	2.47	1.25	221.17
								2014-11-27	2.04	0.82	221.60
								2015-03-11	1.84	0.62	221.80
								2015-09-18	2.41	1.19	221.23
								2016-03-14	1.69	0.47	221.95
								2017-02-28	1.83	0.61	221.81
								2018-02-28	1.77	0.55	221.87
								2025-01-27	2.44	1.22	221.20
GP-B5	223.38	222.41	3.10	2.13	1.52	221.80	220.28	2012-03-21	2.82	1.85	220.56
								2012-09-17	2.91	1.94	220.47
								2012-12-03	2.88	1.91	220.51
								2012-12-18	2.85	1.88	220.53
								2013-04-04	2.80	1.83	220.58
								2013-06-20	2.89	1.92	220.49
								2013-08-22	dry	dry	NA
								2013-10-10	2.88	1.91	220.50
								2013-12-12	2.90	1.93	220.48
								2014-02-12	2.99	2.02	220.39
								2014-11-27	2.91	1.94	220.47
								2015-03-11	2.39	1.42	220.99
								2015-09-18	2.94	1.97	220.44
								2016-03-14	2.71	1.74	220.67
								2017-02-28	2.63	1.66	220.75
								2017-12-06	Gas Probe Repaired		
Replaced	223.16	222.42	2.87	2.13	1.52	221.81	220.29	2017-12-20	1.32	0.35	222.07
								2018-02-28	dry	dry	NA
								2025-01-27	dry	dry	NA

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B6	223.58	222.32	2.78	1.52	0.91	221.71	220.80	2012-03-21	1.67	0.41	221.91
								2012-09-17	2.13	0.87	221.45
								2012-12-03	1.91	0.65	221.67
								2012-12-18	1.77	0.51	221.82
								2013-04-04	1.58	0.32	222.00
								2013-06-20	1.85	0.59	221.73
								2013-08-22	dry	dry	NA
								2013-10-10	2.02	0.76	221.56
								2013-12-12	1.97	0.71	221.61
								2014-02-12	2.12	0.86	221.47
								2014-11-27	1.95	0.69	221.63
								2015-03-11	1.97	0.71	221.61
								2015-09-18	2.12	0.86	221.46
								2016-03-14	1.50	0.24	222.09
								2017-02-28	1.56	0.30	222.02
								2018-02-28	1.72	0.46	221.87
								2018-09-04	1.78	0.52	221.80
								2025-01-27	1.91	0.65	221.67

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B7	221.43	220.34	3.38	2.29	1.52	219.57	218.05	2012-09-17	2.20	1.11	219.23
								2012-12-03	2.19	1.10	219.23
								2012-12-18	2.21	1.12	219.21
								2013-04-04	2.19	1.11	219.23
								2013-06-20	2.16	1.07	219.26
								2013-08-22	1.94	0.85	219.49
								2013-10-10	1.92	0.83	219.51
								2013-12-12	2.10	1.01	219.32
								2014-02-12	2.11	1.02	219.32
								2014-11-27	2.18	1.09	219.25
								2015-03-11	2.24	1.15	219.19
								2015-09-18	2.28	1.19	219.15
								2017-02-28	2.23	1.14	219.20
								2018-02-23	2.06	0.97	219.36
								2019-04-01	2.18	1.09	219.25
								2019-08-20	2.24	1.15	219.18
								2020-02-13	2.22	1.13	219.21
								2021-02-03	2.21	1.12	219.21
								2022-01-25	2.28	1.19	219.14
								2023-03-20	2.15	1.06	219.28
								2024-02-22	1.91	0.82	219.52
								2024-09-19	2.23	1.14	219.20
								2025-01-27	2.49	1.40	218.94
GP-B8	226.65	226.75	3.86	3.96	3.05	225.83	222.79	2012-12-03	3.33	3.43	223.32
								2012-12-18	3.30	3.40	223.35
								2013-04-04	3.24	3.34	223.41
								2013-06-20	3.24	3.34	223.41
								2013-08-22	Not Accessible	NA	NA
								2013-10-10	3.35	3.45	223.30
								2013-12-12	3.32	3.42	223.33
								2014-02-13	3.43	3.53	223.22
								2014-11-25	Damaged	NA	NA
								2014-11-27	3.55	3.65	223.10
								2015-03-12	3.49	3.59	223.16
								2015-09-18	3.43	3.53	223.22
								2016-03-14	Frozen @ 0.26	NA	NA
								2017-02-28	Frozen @ TOP	NA	NA
								2017-03-20	0.22	0.32	226.43
								2018-02-23	3.34	3.44	223.31
								2019-04-01	1.85	1.96	224.79
								2019-08-20	3.46	3.56	223.19
								2020-02-13	1.84	1.94	224.81
								2021-02-24	3.41	3.51	223.23
								2022-02-17	3.37	3.47	223.28
								2023-03-20	3.29	3.39	223.36
								2024-02-22	3.33	3.43	223.32
								2024-09-19	3.38	3.48	223.27
								2025-01-27	3.69	3.79	222.96

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B9	225.64	224.50	3.43	2.29	1.52	223.73	222.21	2012-12-03	2.18	1.15	223.35
								2012-12-18	2.24	1.21	223.28
								2013-04-04	2.07	1.03	223.46
								2013-06-20	2.20	1.17	223.33
								2013-08-22	2.40	1.26	223.24
								2013-10-10	2.28	1.13	223.36
								2013-12-12	2.27	1.12	223.37
								2014-02-25	2.33	1.18	223.32
								2014-03-31	2.16	1.02	223.48
								2014-11-27	2.17	1.02	223.48
								2015-03-12	2.46	1.31	223.18
								2015-09-18	2.38	1.23	223.27
								2016-03-14	1.95	0.80	223.70
								2017-02-28	1.85	0.71	223.79
								2017-12-20	2.22	1.07	223.43
								2018-02-23	2.10	0.95	223.55
								2025-01-27	2.57	1.42	223.07
GP-B10	224.94	224.02	3.21	2.29	1.52	223.26	221.73	2012-12-03	2.05	1.13	222.89
								2012-12-18	2.02	1.10	222.92
								2013-04-04	1.93	1.01	223.01
								2013-06-20	2.05	1.13	222.89
								2013-08-22	2.24	1.32	222.70
								2013-10-10	2.13	1.21	222.81
								2013-12-12	2.11	1.19	222.83
								2014-02-12	2.25	1.33	222.69
								2014-11-27	2.10	1.18	222.84
								2015-03-12	2.25	1.33	222.69
								2015-09-18	2.19	1.27	222.75
								2016-03-14	1.81	0.89	223.13
								2017-02-28	1.89	0.97	223.05
								2017-12-20	1.83	0.91	223.11
								2018-02-28	2.02	1.10	222.92
								2025-01-27	2.48	1.56	222.46
GP-B11	223.62	222.83	3.09	2.29	1.52	222.06	220.54	2012-12-03	2.20	1.41	221.42
								2012-12-18	2.21	1.41	221.41
								2013-04-04	2.09	1.30	221.53
								2013-06-20	2.20	1.40	221.43
								2013-08-22	2.30	1.50	221.33
								2013-10-10	2.24	1.44	221.39
								2013-12-12	2.30	1.50	221.32
								2014-02-12	2.43	1.63	221.20
								2014-11-27	2.18	1.39	221.44
								2015-03-11	2.29	1.49	221.33
								2015-09-18	2.36	1.56	221.26
								2016-03-14	2.07	1.27	221.55
								2017-02-28	1.10	0.31	222.52
								2018-02-28	1.96	1.16	221.67
								2025-01-27	2.46	1.66	221.16

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B12	223.04	222.19	3.14	2.29	1.52	221.42	219.90	2012-12-03	1.62	0.77	221.42
								2012-12-18	1.70	0.84	221.34
								2013-04-04	1.60	0.75	221.44
								2013-06-20	1.71	0.86	221.33
								2013-08-22	1.75	0.90	221.29
								2013-10-10	1.69	0.83	221.35
								2013-12-12	1.74	0.88	221.31
								2014-02-12	1.76	0.91	221.28
								2014-11-27	1.67	0.82	221.37
								2015-03-11	1.71	0.86	221.33
								2015-09-18	1.72	0.86	221.32
								2016-03-14	1.43	0.57	221.61
								2017-02-28	1.46	0.61	221.58
								2018-02-28	1.49	0.64	221.55
								2025-01-27	1.71	0.86	221.33
GP-B13	222.74	221.71	1.95	0.91	0.30	221.10	220.80	2012-09-17	1.45	0.41	221.30
								2012-12-03	1.21	0.18	221.53
								2012-12-18	1.23	0.19	221.52
								2013-04-04	1.22	0.18	221.53
								2013-06-20	1.30	0.27	221.44
								2013-08-22	1.35	0.32	221.39
								2013-10-10	1.32	0.28	221.43
								2013-12-12	1.32	0.29	221.42
								2014-02-12	1.34	0.31	221.40
								2014-11-27	1.26	0.23	221.48
								2015-03-11	1.28	0.25	221.46
								2015-09-18	1.37	0.34	221.37
								2016-03-14	1.30	0.27	221.44
								2017-02-28	1.27	0.24	221.47
								2018-02-28	1.31	0.28	221.43
								2025-01-27	dry @ 1.45	dry @ 0.42	NA

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B14	224.81	224.06	3.03	2.29	1.52	223.30	221.77	2012-12-03	2.32	1.57	222.49
								2012-12-18	2.30	1.56	222.50
								2013-04-04	2.17	1.42	222.64
								2013-06-20	2.29	1.54	222.52
								2013-08-22	2.45	1.70	222.36
								2013-10-10	2.33	1.59	222.48
								2013-12-12	2.31	1.57	222.50
								2014-02-12	2.46	1.72	222.34
								2014-11-27	2.22	1.47	222.59
								2015-03-11	2.63	1.89	222.18
								2015-09-18	2.64	1.89	222.17
								2017-02-28	2.23	1.49	222.58
								2018-02-28	2.51	1.76	222.30
								2019-04-01	2.47	1.72	222.34
								2019-08-20	2.74	1.99	222.07
								2020-02-13	2.43	1.69	222.38
								2021-02-03	2.60	1.86	222.20
								2022-01-25	2.63	1.89	222.18
								2023-03-20	2.42	1.68	222.39
								2024-02-22	2.50	1.75	222.31
								2024-09-19	2.77	2.03	222.04
								2025-01-27	3.01	2.27	221.80
GP-B17	225.85	224.94	3.65	2.75	1.52	223.72	222.20	2012-12-03	3.50	2.59	222.35
								2012-12-18	3.48	2.57	222.37
								2013-04-04	3.29	2.39	222.56
								2013-06-20	3.38	2.48	222.46
								2013-08-22	3.61	2.70	222.24
								2013-10-10	3.52	2.61	222.33
								2013-12-12	3.43	2.53	222.42
								2014-02-12	3.65	2.74	222.20
								2014-11-27	3.42	2.51	222.43
								2015-03-11	3.53	2.63	222.32
								2015-09-18	3.58	2.68	222.26
								2017-02-28	3.13	2.22	222.72
								2018-02-28	3.40	2.50	222.44
								2019-04-01	3.34	2.43	222.51
								2019-08-20	3.65	2.75	222.20
								2020-02-13	3.31	2.40	222.54
								2021-02-03	3.47	2.57	222.37
								2022-01-25	3.50	2.60	222.35
								2023-03-20	3.35	2.44	222.50
								2024-02-22	3.32	2.41	222.53
								2024-09-19	3.59	2.69	222.26
								2024-09-24	3.60	2.70	222.25
								2025-01-28	dry	dry	NA

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B18	224.53	223.58	4.00	3.05	1.52	222.05	220.53	2012-09-17	2.92	1.97	221.61
								2012-12-03	2.64	1.69	221.89
								2012-12-18	2.64	1.69	221.89
								2013-04-04	2.50	1.54	222.04
								2013-06-20	2.59	1.64	221.94
								2013-08-22	dry	dry	NA
								2013-10-10	2.72	1.76	221.82
								2013-12-12	2.65	1.69	221.89
								2014-02-12	2.81	1.86	221.72
								2014-11-27	2.59	1.63	221.95
								2015-03-11	2.82	1.87	221.71
								2015-09-18	2.84	1.89	221.69
								2017-02-28	2.34	1.39	222.19
								2018-02-28	2.48	1.53	222.05
								2019-04-01	2.61	1.66	221.92
								2019-08-20	2.87	1.92	221.66
								2020-02-13	2.61	1.66	221.92
								2021-02-03	2.70	1.75	221.83
								2022-01-25	2.75	1.79	221.79
								2023-03-20	2.59	1.64	221.94
								2024-02-22	2.52	1.57	222.01
								2024-09-19	2.82	1.87	221.71
								2024-09-24	2.82	1.87	221.71
								2025-01-28	3.04	2.09	221.49
GP-B19	222.62	221.84	3.07	2.29	1.52	221.08	219.56	2012-09-17	1.62	0.84	221.00
								2012-12-03	1.29	0.51	221.34
								2012-12-18	1.34	0.55	221.29
								2013-04-04	1.37	0.59	221.26
								2013-06-20	1.45	0.67	221.17
								2013-08-22	1.76	0.98	220.86
								2013-10-10	1.60	0.82	221.02
								2013-12-12	1.58	0.80	221.04
								2014-02-12	1.63	0.85	220.99
								2014-11-27	1.54	0.76	221.08
								2015-03-11	1.53	0.75	221.09
								2015-09-18	1.75	0.97	220.87
								2017-02-28	1.46	0.68	221.16
								2018-02-28	1.48	0.70	221.14
								2019-04-01	1.37	0.59	221.25
								2019-08-20	1.78	1.00	220.84
								2019-08-29	1.86	1.08	220.76
								2020-02-13	1.58	0.80	221.04
								2021-02-03	1.65	0.87	220.97
								2022-01-25	1.67	0.89	220.95
								2023-03-20	1.55	0.77	221.07
								2024-02-22	1.54	0.76	221.08
								2024-09-24	1.73	0.95	220.89
								2025-01-28	1.95	1.17	220.67

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B20	228.29	228.43	4.43	4.57	3.05	226.90	223.85	2013-08-22	3.52	3.66	224.77
								2013-10-10	3.53	3.67	224.76
								2013-12-12	3.52	3.66	224.77
								2014-02-25	3.66	3.80	224.63
								2014-11-25	3.54	3.68	224.75
								2014-11-27	3.45	3.59	224.84
								2015-03-11	Buried	NA	NA
								2015-09-18	3.61	3.75	224.68
								2017-02-28	3.33	3.47	224.95
								2018-02-23	3.16	3.30	225.13
								2019-04-01	3.48	3.62	224.80
								2019-08-20	3.51	3.65	224.78
								2019-08-29	3.56	3.70	224.72
								2020-02-13	3.48	3.62	224.80
								2021-03-03	3.53	3.67	224.75
								2022-02-24	3.51	3.65	224.78
								2023-03-20	3.42	3.55	224.87
								2024-02-22	3.57	3.71	224.72
								2024-09-19	3.47	3.61	224.82
								2025-01-28	3.84	3.98	224.45
GP-B21	228.71	227.66	5.17	4.12	3.05	226.59	223.54	2013-08-22	4.88	3.83	223.83
								2013-10-10	4.86	3.80	223.85
								2013-12-12	4.44	3.39	224.27
								2014-02-12	4.95	3.89	223.76
								2014-11-27	4.85	3.80	223.86
								2015-03-12	4.99	3.94	223.72
								2015-09-18	4.94	3.89	223.77
								2017-02-28	4.69	3.64	224.02
								2018-02-23	4.82	3.77	223.89
								2019-04-01	4.86	3.81	223.85
								2019-08-20	dry	dry	NA
								2020-02-13	4.82	3.76	223.90
								2021-02-03	4.83	3.78	223.88
								2022-01-25	dry	dry	NA
								2023-03-20	dry	dry	NA
								2024-02-22	dry	dry	NA
								2024-09-19	dry	dry	NA
								2025-01-28	dry	dry	NA

Table B-1
Groundwater Elevations
Bunker's Creek Historic Landfill Sites

Well ID	Monitoring Pipe Elevation (masl)	Ground Elevation (masl)	Depth to Bottom of Well (mbmp)	Depth to Bottom of Well (mbgs)	Screen Length (m)	Top of Screen Elevation (masl)	Base of Well Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP-B22	225.01	225.11	3.71	3.81	3.05	224.35	221.30	2013-08-22	2.00	2.09	223.02
								2013-10-10	1.93	2.03	223.08
								2013-12-12	1.86	1.96	223.15
								2014-02-25	2.02	2.12	222.99
								2014-11-25	1.88	1.98	223.13
								2015-03-12	2.06	2.16	222.95
								2015-09-18	2.01	2.11	223.00
								2017-02-28	1.61	1.71	223.40
								2018-02-23	1.82	1.92	223.19
								2019-04-01	1.79	1.89	223.23
								2019-08-20	2.05	2.15	222.96
								2020-02-13	1.80	1.89	223.22
								2021-02-03	1.90	2.00	223.11
								2022-02-17	1.85	1.94	223.17
								2023-03-20	1.76	1.85	223.26
								2024-02-22	1.85	1.95	223.16
								2024-09-19	1.98	2.08	223.03
								2025-01-28	2.24	2.34	222.77
GP-B24	225.39	224.54	3.12	2.27	1.52	223.79	222.27	2017-12-20	2.47	1.61	222.93
								2018-03-27	2.38	1.52	223.02
								2019-04-01	2.27	1.41	223.13
								2019-08-20	2.49	1.63	222.90
								2019-08-29	2.58	1.72	222.81
								2020-02-13	2.28	1.42	223.11
								2021-02-03	2.44	1.58	222.95
								2022-02-24	2.45	1.59	222.95
								2023-03-20	2.26	1.40	223.14
								2024-02-22	2.36	1.50	223.03
								2024-09-19	2.48	1.62	222.91
								2025-01-28	2.79	1.93	222.60

Notes:
masl = metres above sea level
mbmp = metres below monitoring pipe
mbgs = metres below ground surface

APPENDIX C

Analytical Results - Surface Water

FINAL REPORT

CA40044-SEP25 R1

C.AGLD-23592540

Prepared for

WSP Canada Inc.

FINAL REPORT

First Page

CLIENT DETAILS

Client	WSP Canada Inc.
Address	121 Commerce Park Dr, Unit L, Barrie Canada, L4N 8X1 Phone: 705-718-1446. Fax:
Contact	Christi Groves
Telephone	705-718-1446
Facsimile	
Email	christi.groves@wsp.com
Project	C.AGLD-23592540
Order Number	
Samples	Surface Water (6)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA40044-SEP25
Received	09/04/2025
Approved	09/12/2025
Report Number	CA40044-SEP25 R1
Date Reported	09/25/2025

COMMENTS

Temperature of Sample upon Receipt: 7 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:045108

Revision 1 - K and Na results included

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: WSP Canada Inc.
Project: C.AGLD-23592540
Project Manager: Christi Groves
Samplers: K. Tamasauskas

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

	Sample Number	9	10	11	12	13	14		
	Sample Name	SWB1	SWB2	SWB3	SWB4	SWB5	Dup B		
	Sample Matrix	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water		
	Sample Date	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
BTEX									
Benzene	ug/L	0.5	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	ug/L	0.5	8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	ug/L	0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Xylene (total)	ug/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
m/p-xylene	ug/L	0.5	2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
o-xylene	ug/L	0.5	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
General Chemistry									
Alkalinity	mg/L as CaCO3	2		262	246	246	226	218	254
Temperature @ pH	°C	0		18.6	18.8	19.0	19.1	18.6	18.9
Conductivity	uS/cm	2		1890	1810	1840	1900	1780	1890
Ammonia+Ammonium (N)	as N mg/L	0.1		0.6	0.4	0.3	0.2	< 0.1	0.6
Unionized Ammonia	mg/L as N	0.001	0.02	0.020	0.014	0.012	0.008	0.002	0.024
Metals and Inorganics									
Sulphate	mg/L	0.2		28	28	28	31	31	28
Hardness	mg/L as CaCO3	0.05		383	395	390	342	343	401
Aluminum (0.2µm)	mg/L	0.001	0.075	0.005	0.005	0.004	0.003	0.003	0.005
Boron (total)	mg/L	0.002	0.2	0.020	0.020	0.019	0.022	0.018	0.021
Bismuth (total)	mg/L	0.00001		< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Calcium (total)	mg/L	0.01		126	129	128	111	111	131
Iron (total)	mg/L	0.007	0.3	0.959	0.944	0.905	0.731	0.297	1.00
Magnesium (total)	mg/L	0.001		16.9	17.5	17.4	15.7	15.9	17.8

Client: WSP Canada Inc.
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number			9	10	11	12	13	14
Sample Name			SWB1	SWB2	SWB3	SWB4	SWB5	Dup B
Sample Matrix			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date			03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)									
Aluminum (total)	mg/L	0.001		0.077	0.076	0.100	0.012	0.027	0.081
Antimony (total)	mg/L	0.0009	0.02	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0002	0.0002	0.0002	< 0.0002	0.0002	0.0003
Barium (total)	mg/L	0.00008		0.185	0.184	0.180	0.152	0.144	0.196
Beryllium (total)	mg/L	0.000007	1.1	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007	< 0.000007
Cadmium (total)	mg/L	0.000003	0.0005	0.000010	0.000013	0.000009	0.000003	0.000003	0.000008
Cobalt (total)	mg/L	0.000004	0.0009	0.000148	0.000158	0.000155	0.000096	0.000106	0.000160
Chromium (total)	mg/L	0.00008		0.00085	0.00089	0.00098	0.00099	0.00096	0.00101
Copper (total)	mg/L	0.001	0.005	0.001	0.002	0.002	< 0.001	0.001	0.001
Manganese (total)	mg/L	0.00001		0.0559	0.0510	0.0476	0.0352	0.0301	0.0580
Molybdenum (total)	mg/L	0.0004	0.04	0.0005	0.0004	0.0004	0.0005	0.0004	0.0005
Potassium (total)	mg/L	0.009		2.83	2.79	2.78	2.73	2.65	2.95
Sodium (total)	mg/L	0.01		257	257	253	270	263	270
Nickel (total)	mg/L	0.0001	0.025	0.0006	0.0006	0.0007	0.0006	0.0006	0.0007
Phosphorus (total)	mg/L	0.003	0.01	0.031	0.037	0.036	0.020	0.017	0.034
Lead (total)	mg/L	0.00009	0.025	0.00073	0.00091	0.00067	0.00011	0.00017	0.00081
Lithium (total)	mg/L	0.0001		0.0028	0.0028	0.0028	0.0027	0.0023	0.0030
Selenium (total)	mg/L	0.00004	0.1	0.00031	0.00025	0.00025	0.00028	0.00035	0.00026
Silicon (total)	mg/L	0.02		5.58	5.78	5.74	5.22	5.06	5.79
Silver (total)	mg/L	0.00005	0.0001	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Strontium (total)	mg/L	0.00008		0.521	0.523	0.536	0.567	0.530	0.539
Tellurium (total)	mg/L	0.0001		< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001

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	Sample Number			9	10	11	12	13	14
	Sample Name			SWB1	SWB2	SWB3	SWB4	SWB5	Dup B
	Sample Matrix			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
	Sample Date			03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)									
Thallium (total)	mg/L	0.000005	0.0003	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005	< 0.000005
Tin (total)	mg/L	0.00006		0.00011	0.00012	0.00014	0.00009	0.00009	0.00015
Titanium (total)	mg/L	0.0001		0.0039	0.0046	0.0060	0.0006	0.0014	0.0072
Tungsten (total)	mg/L	0.0002	0.03	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Uranium (total)	mg/L	0.000002	0.005	0.000810	0.000843	0.000836	0.000928	0.00106	0.000849
Vanadium (total)	mg/L	0.00001	0.006	0.00102	0.00108	0.00105	0.00068	0.00099	0.00103
Zirconium (total)	mg/L	0.002	0.004	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Zinc (total)	mg/L	0.002	0.02	0.006	0.009	0.008	0.003	0.004	0.007
Other (ORP)									
pH	No unit	0.05	8.6	7.98	8.06	8.05	8.04	8.08	8.04
Chloride	mg/L	0.2		470	440	430	460	440	450
Mercury (dissolved)	mg/L	0.00001	0.0002	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
PHCs									
F1 (C6-C10)	µg/L	25		< 25	< 25	< 25	< 25	< 25	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25	< 25	< 25	< 25
F2 (C10-C16)	µg/L	100		< 100	< 100	< 100	< 100	< 100	< 100
F3 (C16-C34)	µg/L	200		< 200	< 200	< 200	< 200	< 200	< 200
F4 (C34-C50)	µg/L	200		< 200	< 200	< 200	< 200	< 200	< 200
Chromatogram returned to baseline at nC50	Yes / No	no		YES	YES	YES	YES	YES	YES

Client: WSP Canada Inc.
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

	Sample Number			9	10	11	12	13	14		
	Sample Name			SWB1	SWB2	SWB3	SWB4	SWB5	Dup B		
	Sample Matrix			Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water		
	Sample Date			03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025		
Parameter		**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	
THMs (VOC)											
Bromodichloromethane		µg/L	0.5	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Bromoform		µg/L	0.5	60	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Dibromochloromethane		µg/L	0.5	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
VOC Surrogates											
Surr 1,2-Dichloroethane-d4		Surr Rec %			109	110	112	113	110	114	
Surr 2-Bromo-1-Chloropropane		Surr Rec %			97	99	99	98	99	101	
Surr 4-Bromofluorobenzene		Surr Rec %			90	88	90	87	90	89	
VOCs											
Acetone		µg/L	30		< 30	< 30	< 30	< 30	< 30	< 30	
Bromomethane		µg/L	0.5	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Carbon tetrachloride		µg/L	0.2		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Chlorobenzene		µg/L	0.5	15	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,2-Dichlorobenzene		µg/L	0.5	2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,3-Dichlorobenzene		µg/L	0.5	2.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,4-Dichlorobenzene		µg/L	0.5	4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Dichlorodifluoromethane		µg/L	2.0		< 2	< 2	< 2	< 2	< 2	< 2	
1,1-Dichloroethane		µg/L	0.5	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,2-Dichloroethane		µg/L	0.5	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,1-Dichloroethylene		µg/L	0.5	40	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
trans-1,2-Dichloroethene		µg/L	0.5	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
cis-1,2-Dichloroethene		µg/L	0.5	200	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	

Client: WSP Canada Inc.
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number				9	10	11	12	13	14
Sample Name				SWB1	SWB2	SWB3	SWB4	SWB5	Dup B
Sample Matrix				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
Sample Date				03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025	03/09/2025
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOCs (continued)									
1,2-Dichloropropane	µg/L	0.5	0.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5	7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	5	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0		< 1	< 1	< 1	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	400	< 20	< 20	< 20	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20		< 20	< 20	< 20	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	200	< 2	< 2	< 2	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	100	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	4	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	50	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	10	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	800	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	20	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0		< 5	< 5	< 5	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	600	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SWB1				
Iron	SM 3030/EPA 200.8	mg/L	0.959	0.3
Phosphorus	SM 3030/EPA 200.8	mg/L	0.031	0.01
SWB2				
Iron	SM 3030/EPA 200.8	mg/L	0.944	0.3
Phosphorus	SM 3030/EPA 200.8	mg/L	0.037	0.01
SWB3				
Iron	SM 3030/EPA 200.8	mg/L	0.905	0.3
Phosphorus	SM 3030/EPA 200.8	mg/L	0.036	0.01
SWB4				
Iron	SM 3030/EPA 200.8	mg/L	0.731	0.3
Phosphorus	SM 3030/EPA 200.8	mg/L	0.020	0.01
SWB5				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.017	0.01
Dup B				
Unionized Ammonia	N/A - Calculation	mg/L as N	0.024	0.02
Iron	SM 3030/EPA 200.8	mg/L	1.00	0.3
Phosphorus	SM 3030/EPA 200.8	mg/L	0.034	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0118-SEP25	mg/L as CaCO3	2	< 2	1	20	94	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0074-SEP25	as N mg/L	0.1	<0.1	ND	10	99	90	110	98	75	125

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0224-SEP25	mg/L	0.2	<0.2	0	20	98	70	130	NV	70	130
Sulphate	DIO0224-SEP25	mg/L	0.2	<0.2	1	20	99	90	110	96	75	125
Chloride	DIO0245-SEP25	mg/L	0.2	<0.2	1	20	99	70	130	110	70	130

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0118-SEP25	uS/cm	2	< 2	1	10	101	90	110	NA		

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0013-SEP25	mg/L	0.00001	< 0.00001	ND	20	108	80	120	124	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0059-SEP25	mg/L	0.00005	<0.00005	ND	20	96	90	110	NV	70	130
Aluminum (total)	EMS0059-SEP25	mg/L	0.001	<0.001	3	20	98	90	110	109	70	130
Aluminum (0.2µm)	EMS0059-SEP25	mg/L	0.001	<0.001	3	20	98	90	110	109	70	130
Arsenic (total)	EMS0059-SEP25	mg/L	0.0002	<0.0002	18	20	96	90	110	102	70	130
Barium (total)	EMS0059-SEP25	mg/L	0.00008	<0.00008	4	20	98	90	110	96	70	130
Beryllium (total)	EMS0059-SEP25	mg/L	0.000007	<0.000007	ND	20	99	90	110	106	70	130
Boron (total)	EMS0059-SEP25	mg/L	0.002	<0.002	0	20	97	90	110	94	70	130
Bismuth (total)	EMS0059-SEP25	mg/L	0.00001	<0.00001	ND	20	94	90	110	84	70	130
Calcium (total)	EMS0059-SEP25	mg/L	0.01	<0.01	0	20	98	90	110	85	70	130
Cadmium (total)	EMS0059-SEP25	mg/L	0.000003	<0.000003	1	20	97	90	110	95	70	130
Cobalt (total)	EMS0059-SEP25	mg/L	0.000004	<0.000004	5	20	99	90	110	92	70	130
Chromium (total)	EMS0059-SEP25	mg/L	0.00008	<0.00008	ND	20	101	90	110	100	70	130
Copper (total)	EMS0059-SEP25	mg/L	0.001	<0.001	8	20	99	90	110	83	70	130
Iron (total)	EMS0059-SEP25	mg/L	0.007	<0.007	12	20	99	90	110	100	70	130
Potassium (total)	EMS0059-SEP25	mg/L	0.009	<0.009	0	20	100	90	110	92	70	130
Lithium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	6	20	99	90	110	102	70	130
Magnesium (total)	EMS0059-SEP25	mg/L	0.001	<0.001	1	20	98	90	110	94	70	130
Manganese (total)	EMS0059-SEP25	mg/L	0.00001	<0.00001	2	20	99	90	110	80	70	130
Molybdenum (total)	EMS0059-SEP25	mg/L	0.0004	<0.0004	18	20	97	90	110	94	70	130
Sodium (total)	EMS0059-SEP25	mg/L	0.01	<0.01	0	20	98	90	110	98	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nickel (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	6	20	98	90	110	86	70	130
Lead (total)	EMS0059-SEP25	mg/L	0.00009	<0.00009	4	20	96	90	110	84	70	130
Phosphorus (total)	EMS0059-SEP25	mg/L	0.003	<0.003	ND	20	96	90	110	NV	70	130
Antimony (total)	EMS0059-SEP25	mg/L	0.0009	<0.0005	8	20	101	90	110	93	70	130
Selenium (total)	EMS0059-SEP25	mg/L	0.00004	<0.00004	ND	20	97	90	110	101	70	130
Silicon (total)	EMS0059-SEP25	mg/L	0.02	<0.02	1	20	95	90	110	NV	70	130
Tin (total)	EMS0059-SEP25	mg/L	0.00006	<0.00006	ND	20	98	90	110	NV	70	130
Strontium (total)	EMS0059-SEP25	mg/L	0.00008	<0.00008	1	20	101	90	110	88	70	130
Tellurium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	ND	20	97	90	110	NV	70	130
Titanium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	ND	20	100	90	110	NV	70	130
Thallium (total)	EMS0059-SEP25	mg/L	0.000005	<0.000005	ND	20	94	90	110	81	70	130
Uranium (total)	EMS0059-SEP25	mg/L	0.000002	<0.000002	3	20	94	90	110	86	70	130
Vanadium (total)	EMS0059-SEP25	mg/L	0.00001	<0.00001	1	20	98	90	110	97	70	130
Tungsten (total)	EMS0059-SEP25	mg/L	0.0002	<0.0002	ND	20	99	90	110	NV	70	130
Zinc (total)	EMS0059-SEP25	mg/L	0.002	<0.002	8	20	98	90	110	94	70	130
Zirconium (total)	EMS0059-SEP25	mg/L	0.002	<0.002	ND	20	95	90	110	NV	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0091-SEP25	ug/L	25	<25	ND	30	89	60	140	86	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0159-SEP25	µg/L	100	<100	ND	30	81	60	140	88	60	140
F3 (C16-C34)	GCM0159-SEP25	µg/L	200	<200	ND	30	81	60	140	88	60	140
F4 (C34-C50)	GCM0159-SEP25	µg/L	200	<200	ND	30	81	60	140	88	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0118-SEP25	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	106	60	130	114	50	140
1,1,1-Trichloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	106	60	130	117	50	140
1,1,2,2-Tetrachloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	116	50	140
1,1,2-Trichloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	116	50	140
1,1-Dichloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	105	60	130	115	50	140
1,1-Dichloroethylene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	107	60	130	120	50	140
1,2-Dichlorobenzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	108	60	130	116	50	140
1,2-Dichloroethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	113	50	140
1,2-Dichloropropane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	102	60	130	114	50	140
1,3-Dichlorobenzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	110	60	130	115	50	140
1,4-Dichlorobenzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	108	60	130	115	50	140
Acetone	GCM0113-SEP25	ug/L	30	<30	ND	30	93	50	140	114	50	140
Benzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	115	50	140
Bromodichloromethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	103	60	130	116	50	140
Bromoform	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	113	50	140
Bromomethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	108	50	140	120	50	140
Carbon tetrachloride	GCM0113-SEP25	ug/L	0.2	<0.2	ND	30	108	60	130	115	50	140
Chlorobenzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	108	60	130	116	50	140
Chloroform	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	105	60	130	115	50	140
cis-1,2-Dichloroethene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	115	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	110	50	140
Dibromochloromethane	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	97	60	130	112	50	140
Dichlorodifluoromethane	GCM0113-SEP25	ug/L	2.0	<2	ND	30	66	50	140	71	50	140
Ethylbenzene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	111	60	130	118	50	140
Ethylenedibromide	GCM0113-SEP25	ug/L	0.2	<0.2	ND	30	98	60	130	115	50	140
n-Hexane	GCM0113-SEP25	ug/L	1.0	<1	ND	30	78	60	130	81	50	140
m/p-xylene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	110	60	130	117	50	140
Methyl ethyl ketone	GCM0113-SEP25	ug/L	20	<20	ND	30	99	60	130	120	50	140
Methyl Isobutyl Ketone	GCM0113-SEP25	ug/L	20	<20	ND	30	97	50	140	123	50	140
Methyl-t-butyl Ether	GCM0113-SEP25	ug/L	2.0	<2	ND	30	96	60	130	112	50	140
Methylene Chloride	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	118	50	140
o-xylene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	110	60	130	116	50	140
Styrene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	111	60	130	118	50	140
Tetrachloroethylene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	106	60	130	115	50	140
Toluene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	115	50	140
trans-1,2-Dichloroethene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	107	60	130	118	50	140
trans-1,3-Dichloropropene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	102	60	130	116	50	140
Trichloroethylene	GCM0113-SEP25	ug/L	0.5	<0.5	ND	30	107	60	130	119	50	140
Trichlorofluoromethane	GCM0113-SEP25	ug/L	5.0	<5	ND	30	99	50	140	110	50	140
Vinyl Chloride	GCM0113-SEP25	ug/L	0.2	<0.2	ND	30	98	50	140	110	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 045108 Page 1 of 3

Laboratory Information Section - Lab use only

Received By: Ari Goodman | Received By (signature): | Cooling Agent Present: Yes ☑ No ☐ Type: ice
Received Date: 09/04/25 (mm/dd/yy) | Custody Seal Present: Yes ☑ No ☐ | Temperature Upon Receipt (°C): 7x3
Received Time: 14:50 (hr : min) | Custody Seal Intact: Yes ☑ No ☐ | LAB LIMS #: CA 40044 SO25

REPORT INFORMATION	INVOICE INFORMATION
Company: WSP CANADA	☒ (same as Report Information)
Contact: CHRISTI GROVES	Company:
Address: 121 COMMERCE PARK DR UNIT 1, BARRIE, ON	Contact:
Phone:	Address:
Fax:	Phone:
Email: christi.groves@wsp.com	Email: apayables.invoice@wsp.com

Quotation #: 2023-451 | P.O. #:
Project #: CA-GLD-23592540 | Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Client Regular TAT ☐ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Agri/Other ☐ Medium/Fine
☐ Table 3
☐ Table ____ Appx. ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☒ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☒ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH (B(HWS),EC,SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B (HWS-soil only) Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Ti,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: major ions	Other: indicators	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	SWB1	9.3.25	12pm	13	SW			X						X	X			X	X						
2	SWB2		12:45					X						X	X			X	X						
3	SWB3		1:15					X						X	X			X	X						
4	SWB4		1:45					X						X	X			X	X						
5	SWB5		2:15					X						X	X			X	X						
6	DUP B	↓		↓	↓			X						X	X			X	X						
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions

Sampled By (NAME): K TSIMASDUSKAS | Signature: | Date: 9/3/25 (mm/dd/yy)
Relinquished by (NAME): K TSIMASDUSKAS | Signature: | Date: 9/3/25 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.8
Date of Issue: 06 SEP 2024

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

FINAL REPORT

CA40045-SEP25 R2

C.AGLD-23592540

Prepared for

WSP Canada Inc.

FINAL REPORT

First Page

CLIENT DETAILS

Client	WSP Canada Inc.
Address	121 Commerce Park Dr, Unit L, Barrie Canada, L4N 8X1 Phone: 705-718-1446. Fax:
Contact	Christi Groves
Telephone	705-718-1446
Facsimile	
Email	christi.groves@wsp.com
Project	C.AGLD-23592540
Order Number	
Samples	Surface Water (2)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA40045-SEP25
Received	09/04/2025
Approved	09/12/2025
Report Number	CA40045-SEP25 R2
Date Reported	09/12/2025

COMMENTS

Temperature of Sample upon Receipt: 7 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:045110

QCBatchID:GCM088-SEP25 - Dichlorodifluoromethane LCS and Matrix Spike; Recovery is outside of control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: WSP Canada Inc.
Project: C.AGLD-23592540
Project Manager: Christi Groves
Samplers: K. Tamasauskas

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	9	10
Sample Name	Trip Blank	Field Blank
Sample Matrix	Surface Water	Surface Water
Sample Date	29/08/2025	03/09/2025

Parameter	Units	RL	L1	Result	Result
BTEX					
Benzene	ug/L	0.5	100	< 0.5	< 0.5
Ethylbenzene	ug/L	0.5	8	< 0.5	< 0.5
Toluene	ug/L	0.5	0.8	< 0.5	< 0.5
Xylene (total)	ug/L	0.5		< 0.5	< 0.5
m/p-xylene	ug/L	0.5	2	< 0.5	< 0.5
o-xylene	ug/L	0.5	40	< 0.5	< 0.5
General Chemistry					
Alkalinity	mg/L as CaCO3	2		---	7
Temperature @ pH	°C	0		---	21.1
Conductivity	uS/cm	2		---	18
Ammonia+Ammonium (N)	as N mg/L	0.1		---	< 0.1
Unionized Ammonia	mg/L as N	0.001	0.02	---	< 0.001
Metals and Inorganics					
Sulphate	mg/L	0.2		---	< 0.2
Hardness	mg/L as CaCO3	0.05		---	< 0.05
Aluminum (0.2µm)	mg/L	0.001	0.015	---	0.001
Boron (total)	mg/L	0.002	0.2	---	< 0.002
Bismuth (total)	mg/L	0.00001		---	< 0.00001
Calcium (total)	mg/L	0.01		---	< 0.01
Iron (total)	mg/L	0.007	0.3	---	< 0.007
Magnesium (total)	mg/L	0.001		---	0.003

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L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	9	10
Sample Name	Trip Blank	Field Blank
Sample Matrix	Surface Water	Surface Water
Sample Date	29/08/2025	03/09/2025

Parameter	Units	RL	L1	Result	Result
Metals and Inorganics (continued)					
Aluminum (total)	mg/L	0.001		---	< 0.001
Antimony (total)	mg/L	0.0009	0.02	---	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	---	< 0.0002
Barium (total)	mg/L	0.00008		---	0.00049
Beryllium (total)	mg/L	0.000007	0.011	---	< 0.000007
Cadmium (total)	mg/L	0.000003	0.0001	---	< 0.000003
Cobalt (total)	mg/L	0.000004	0.0009	---	< 0.000004
Chromium (total)	mg/L	0.00008		---	0.00013
Copper (total)	mg/L	0.001	0.001	---	< 0.001
Manganese (total)	mg/L	0.00001		---	0.00004
Molybdenum (total)	mg/L	0.0004	0.04	---	< 0.0004
Potassium (total)	mg/L	0.009		---	< 0.009
Sodium (total)	mg/L	0.01		---	0.02
Nickel (total)	mg/L	0.0001	0.025	---	< 0.0001
Phosphorus (total)	mg/L	0.003	0.01	---	< 0.003
Lead (total)	mg/L	0.00009	0.005	---	0.00015
Lithium (total)	mg/L	0.0001		---	< 0.0001
Selenium (total)	mg/L	0.00004	0.1	---	< 0.00004
Silicon (total)	mg/L	0.02		---	< 0.02
Silver (total)	mg/L	0.00005	0.0001	---	< 0.00005
Strontium (total)	mg/L	0.00008		---	0.00024
Tellurium (total)	mg/L	0.0001		---	< 0.0001

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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	9	10
Sample Name	Trip Blank	Field Blank
Sample Matrix	Surface Water	Surface Water
Sample Date	29/08/2025	03/09/2025

Parameter	Units	RL	L1	Result	Result
Metals and Inorganics (continued)					
Thallium (total)	mg/L	0.000005	0.0003	---	< 0.000005
Tin (total)	mg/L	0.00006		---	< 0.00006
Titanium (total)	mg/L	0.0001		---	< 0.0001
Tungsten (total)	mg/L	0.0002	0.03	---	< 0.0002
Uranium (total)	mg/L	0.000002	0.005	---	< 0.000002
Vanadium (total)	mg/L	0.00001	0.006	---	< 0.00001
Zirconium (total)	mg/L	0.002	0.004	---	< 0.002
Zinc (total)	mg/L	0.002	0.02	---	< 0.002
Other (ORP)					
pH	No unit	0.05	0.1	---	6.21
Chloride	mg/L	0.2		---	3.8
Mercury (dissolved)	mg/L	0.00001	0.0002	---	< 0.00001
PHCs					
F1 (C6-C10)	µg/L	25		---	< 25
F1-BTEX (C6-C10)	µg/L	25		---	< 25
F2 (C10-C16)	µg/L	100		---	< 100
F3 (C16-C34)	µg/L	200		---	< 200
F4 (C34-C50)	µg/L	200		---	< 200
Chromatogram returned to baseline at nC50	Yes / No	no		---	YES

Client: WSP Canada Inc.
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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

				Sample Number	9	10
				Sample Name	Trip Blank	Field Blank
				Sample Matrix	Surface Water	Surface Water
				Sample Date	29/08/2025	03/09/2025
Parameter		**Units**	**RL**	**L1**	**Result**	**Result**
THMs (VOC)						
Bromodichloromethane		µg/L	0.5	200	< 0.5	< 0.5
Bromoform		µg/L	0.5	60	< 0.5	< 0.5
Dibromochloromethane		µg/L	0.5	40	< 0.5	< 0.5
VOC Surrogates						
Surr 1,2-Dichloroethane-d4		Surr Rec %			113	113
Surr 2-Bromo-1-Chloropropane		Surr Rec %			99	103
Surr 4-Bromofluorobenzene		Surr Rec %			89	89
VOCs						
Acetone		µg/L	30		< 30	< 30
Bromomethane		µg/L	0.5	0.9	< 0.5	< 0.5
Carbon tetrachloride		µg/L	0.2		< 0.2	< 0.2
Chlorobenzene		µg/L	0.5	15	< 0.5	< 0.5
1,2-Dichlorobenzene		µg/L	0.5	2.5	< 0.5	< 0.5
1,3-Dichlorobenzene		µg/L	0.5	2.5	< 0.5	< 0.5
1,4-Dichlorobenzene		µg/L	0.5	4	< 0.5	< 0.5
Dichlorodifluoromethane		µg/L	2.0		< 2	< 2
1,1-Dichloroethane		µg/L	0.5	100	< 0.5	< 0.5
1,2-Dichloroethane		µg/L	0.5	100	< 0.5	< 0.5
1,1-Dichloroethylene		µg/L	0.5	40	< 0.5	< 0.5
trans-1,2-Dichloroethene		µg/L	0.5	200	< 0.5	< 0.5
cis-1,2-Dichloroethene		µg/L	0.5	200	< 0.5	< 0.5

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MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	9	10
Sample Name	Trip Blank	Field Blank
Sample Matrix	Surface Water	Surface Water
Sample Date	29/08/2025	03/09/2025

Parameter	Units	RL	L1	Result	Result
VOCs (continued)					
1,2-Dichloropropane	µg/L	0.5	0.7	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5	7	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5		< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	5	< 0.2	< 0.2
n-Hexane	µg/L	1.0		< 1	< 1
Methyl ethyl ketone	µg/L	20	400	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20		< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	200	< 2	< 2
Methylene Chloride	µg/L	0.5	100	< 0.5	< 0.5
Styrene	µg/L	0.5	4	< 0.5	< 0.5
Tetrachloroethylene	µg/L	0.5	50	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	20	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	70	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	10	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	800	< 0.5	< 0.5
Trichloroethylene	µg/L	0.5	20	< 0.5	< 0.5
Trichlorofluoromethane	µg/L	5.0		< 5	< 5
Vinyl Chloride	µg/L	0.2	600	< 0.2	< 0.2
Chloroform	µg/L	0.5		< 0.5	< 0.5

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
Field Blank				
pH	SM 4500	No unit	6.21	0.1

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0116-SEP25	mg/L as CaCO3	2	< 2	1	20	109	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0074-SEP25	as N mg/L	0.1	<0.1	ND	10	99	90	110	98	75	125

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO0224-SEP25	mg/L	0.2	<0.2	1	20	99	90	110	96	75	125
Chloride	DIO0257-SEP25	mg/L	0.2	<0.2	1	20	99	70	130	111	70	130

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0116-SEP25	uS/cm	2	< 2	0	10	99	90	110	NA		

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (dissolved)	EHG0013-SEP25	mg/L	0.00001	< 0.00001	ND	20	108	80	120	124	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0059-SEP25	mg/L	0.00005	<0.00005	ND	20	96	90	110	NV	70	130
Aluminum (total)	EMS0059-SEP25	mg/L	0.001	<0.001	3	20	98	90	110	109	70	130
Aluminum (0.2µm)	EMS0059-SEP25	mg/L	0.001	<0.001	3	20	98	90	110	109	70	130
Arsenic (total)	EMS0059-SEP25	mg/L	0.0002	<0.0002	18	20	96	90	110	102	70	130
Beryllium (total)	EMS0059-SEP25	mg/L	0.000007	<0.000007	ND	20	99	90	110	106	70	130
Boron (total)	EMS0059-SEP25	mg/L	0.002	<0.002	0	20	97	90	110	94	70	130
Bismuth (total)	EMS0059-SEP25	mg/L	0.00001	<0.00001	ND	20	94	90	110	84	70	130
Calcium (total)	EMS0059-SEP25	mg/L	0.01	<0.01	0	20	98	90	110	85	70	130
Cadmium (total)	EMS0059-SEP25	mg/L	0.000003	<0.000003	1	20	97	90	110	95	70	130
Copper (total)	EMS0059-SEP25	mg/L	0.001	<0.001	8	20	99	90	110	83	70	130
Iron (total)	EMS0059-SEP25	mg/L	0.007	<0.007	12	20	99	90	110	100	70	130
Potassium (total)	EMS0059-SEP25	mg/L	0.009	<0.009	0	20	100	90	110	92	70	130
Lithium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	6	20	99	90	110	102	70	130
Molybdenum (total)	EMS0059-SEP25	mg/L	0.0004	<0.0004	18	20	97	90	110	94	70	130
Nickel (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	6	20	98	90	110	86	70	130
Phosphorus (total)	EMS0059-SEP25	mg/L	0.003	<0.003	ND	20	96	90	110	NV	70	130
Antimony (total)	EMS0059-SEP25	mg/L	0.0009	<0.0005	8	20	101	90	110	93	70	130
Selenium (total)	EMS0059-SEP25	mg/L	0.00004	<0.00004	ND	20	97	90	110	101	70	130
Silicon (total)	EMS0059-SEP25	mg/L	0.02	<0.02	1	20	95	90	110	NV	70	130
Tin (total)	EMS0059-SEP25	mg/L	0.00006	<0.00006	ND	20	98	90	110	NV	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Tellurium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	ND	20	97	90	110	NV	70	130
Titanium (total)	EMS0059-SEP25	mg/L	0.0001	<0.0001	ND	20	100	90	110	NV	70	130
Thallium (total)	EMS0059-SEP25	mg/L	0.000005	<0.000005	ND	20	94	90	110	81	70	130
Vanadium (total)	EMS0059-SEP25	mg/L	0.00001	<0.00001	1	20	98	90	110	97	70	130
Tungsten (total)	EMS0059-SEP25	mg/L	0.0002	<0.0002	ND	20	99	90	110	NV	70	130
Zinc (total)	EMS0059-SEP25	mg/L	0.002	<0.002	8	20	98	90	110	94	70	130
Zirconium (total)	EMS0059-SEP25	mg/L	0.002	<0.002	ND	20	95	90	110	NV	70	130
Barium (total)	EMS0103-SEP25	mg/L	0.00008	<0.00008	1	20	99	90	110	93	70	130
Cobalt (total)	EMS0103-SEP25	mg/L	0.000004	<0.000004	2	20	99	90	110	95	70	130
Chromium (total)	EMS0103-SEP25	mg/L	0.00008	<0.00008	ND	20	98	90	110	90	70	130
Magnesium (total)	EMS0103-SEP25	mg/L	0.001	<0.001	0	20	95	90	110	113	70	130
Manganese (total)	EMS0103-SEP25	mg/L	0.00001	<0.00001	0	20	97	90	110	99	70	130
Sodium (total)	EMS0103-SEP25	mg/L	0.01	<0.01	0	20	96	90	110	98	70	130
Lead (total)	EMS0103-SEP25	mg/L	0.00009	<0.00009	7	20	98	90	110	84	70	130
Strontium (total)	EMS0103-SEP25	mg/L	0.00008	<0.00008	1	20	99	90	110	95	70	130
Uranium (total)	EMS0103-SEP25	mg/L	0.000002	<0.000002	6	20	98	90	110	88	70	130

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0091-SEP25	ug/L	25	<25	ND	30	89	60	140	86	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0178-SEP25	µg/L	100	<100	ND	30	79	60	140	82	60	140
F3 (C16-C34)	GCM0178-SEP25	µg/L	200	<200	ND	30	79	60	140	82	60	140
F4 (C34-C50)	GCM0178-SEP25	µg/L	200	<200	ND	30	79	60	140	82	60	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0116-SEP25	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENV]GC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	101	50	140
1,1,1-Trichloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	102	60	130	105	50	140
1,1,2,2-Tetrachloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	95	60	130	99	50	140
1,1,2-Trichloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	99	50	140
1,1-Dichloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	103	50	140
1,1-Dichloroethylene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	98	60	130	100	50	140
1,2-Dichlorobenzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	96	60	130	102	50	140
1,2-Dichloroethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	102	50	140
1,2-Dichloropropane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	99	50	140
1,3-Dichlorobenzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	102	50	140
1,4-Dichlorobenzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	101	50	140
Acetone	GCM0088-SEP25	ug/L	30	<30	ND	30	92	50	140	93	50	140
Benzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	103	50	140
Bromodichloromethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	100	50	140
Bromoform	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	94	60	130	98	50	140
Bromomethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	92	50	140	94	50	140
Carbon tetrachloride	GCM0088-SEP25	ug/L	0.2	<0.2	ND	30	102	60	130	106	50	140
Chlorobenzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	102	50	140
Chloroform	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	105	50	140
cis-1,2-Dichloroethene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	103	50	140

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	98	50	140
Dibromochloromethane	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	97	60	130	97	50	140
Dichlorodifluoromethane	GCM0088-SEP25	ug/L	2.0	<2	ND	30	45	50	140	45	50	140
Ethylbenzene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	102	60	130	102	50	140
Ethylenedibromide	GCM0088-SEP25	ug/L	0.2	<0.2	ND	30	101	60	130	102	50	140
n-Hexane	GCM0088-SEP25	ug/L	1.0	<1	ND	30	85	60	130	90	50	140
m/p-xylene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	103	50	140
Methyl ethyl ketone	GCM0088-SEP25	ug/L	20	<20	ND	30	98	60	130	98	50	140
Methyl Isobutyl Ketone	GCM0088-SEP25	ug/L	20	<20	ND	30	98	50	140	93	50	140
Methyl-t-butyl Ether	GCM0088-SEP25	ug/L	2.0	<2	ND	30	95	60	130	96	50	140
Methylene Chloride	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	96	60	130	99	50	140
o-xylene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	103	50	140
Styrene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	104	50	140
Tetrachloroethylene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	104	60	130	101	50	140
Toluene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	101	60	130	101	50	140
trans-1,2-Dichloroethene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	99	60	130	105	50	140
trans-1,3-Dichloropropene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	100	60	130	99	50	140
Trichloroethylene	GCM0088-SEP25	ug/L	0.5	<0.5	ND	30	107	60	130	102	50	140
Trichlorofluoromethane	GCM0088-SEP25	ug/L	5.0	<5	ND	30	81	50	140	83	50	140
Vinyl Chloride	GCM0088-SEP25	ug/L	0.2	<0.2	ND	30	82	50	140	82	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.
Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.
LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.
Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.
RL: Reporting limit
RPD: Relative percent difference
AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.
Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.
Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 045110
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Ari Goodman
Received Date: 09/04/25 (mm/dd/yy)
Received Time: 14:50 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ice
Temperature Upon Receipt (°C): 7x3
LAB LIMS #: CA 40045 SEP25

REPORT INFORMATION	INVOICE INFORMATION
Company: WSP	☒ (same as Report Information)
Contact: CHRISTI GROVES	Company:
Address: 121 COMMERCE PARK DR, UNIT L, BARRIE, ON	Contact:
Phone:	Address:
Fax:	Phone:
Email: CHRISTI.groves@wsp.com	Email: ca.payables.invoice@wsp.com

Quotation #: 2023-451
Project #: CA-GLD-235925.0
P.O. #:
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Client Regular TAT ☐ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ____ Appx. ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☒ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1	TRIP BLANK	9/3/25	—	2	SW
2	FIELD BLANK	9/3/25	8:30	13	SW
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

	Field Filtered (Y/N)	M & I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS), EC, SAR - soil) (Cl, Na-water)	M & I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M & I: ICP Metals only Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: major ions	Other: indicators	Other	Other	Other	Other	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
															Sewer Use: Specify pkg	Water Characterization Pkg: General ☐ Extended ☐				
1			☒						☒	☒			☒	☒						
2			X						X	X			X	X						
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Observations/Comments/Special Instructions

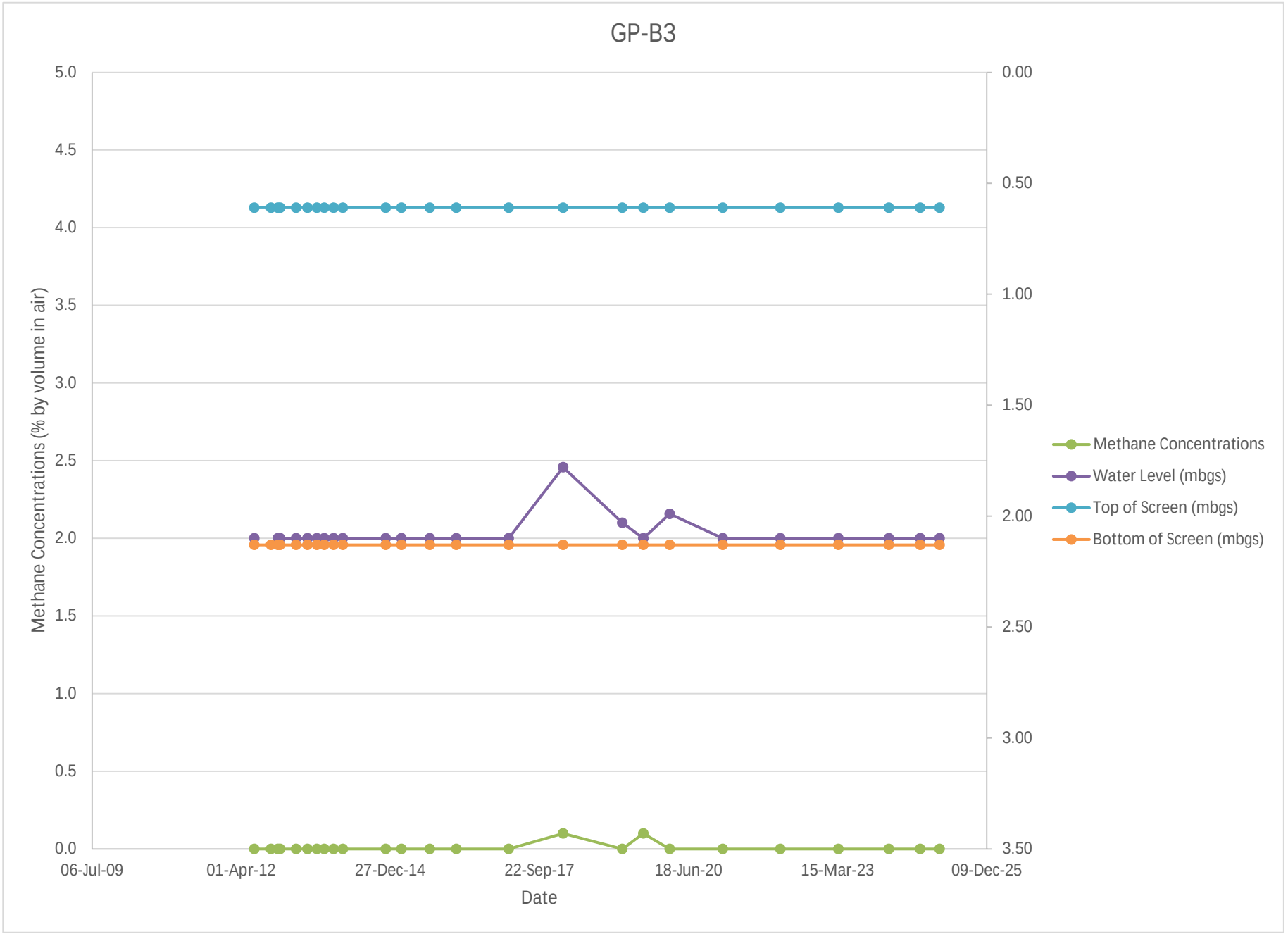
Sampled By (NAME): K TAMASDUS/AAS Signature: Date: 9/3/25 (mm/dd/yy)
Relinquished by (NAME): Signature: Date: 9/3/25 (mm/dd/yy)

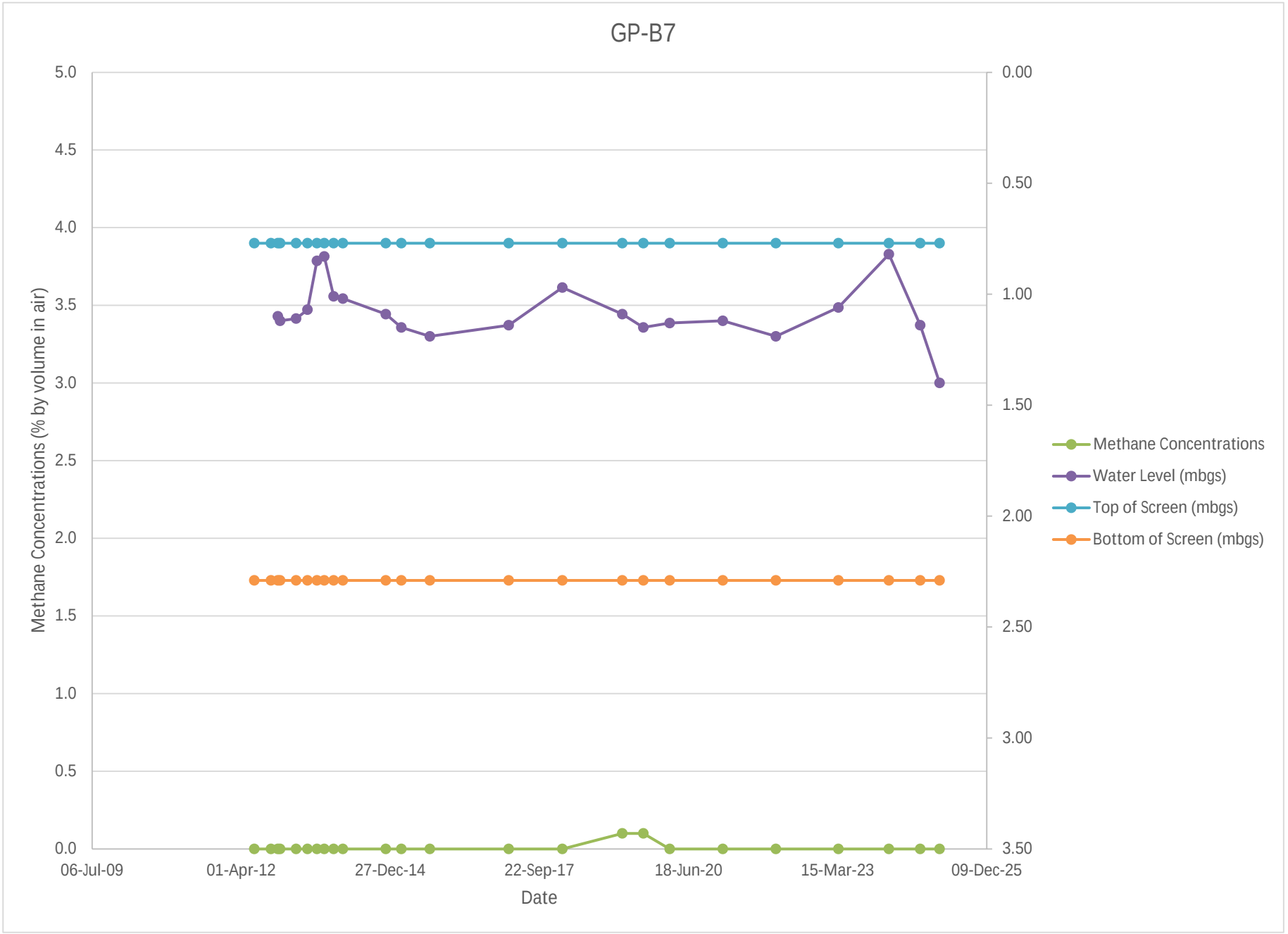
Pink Copy - Client
Yellow & White Copy - SGS

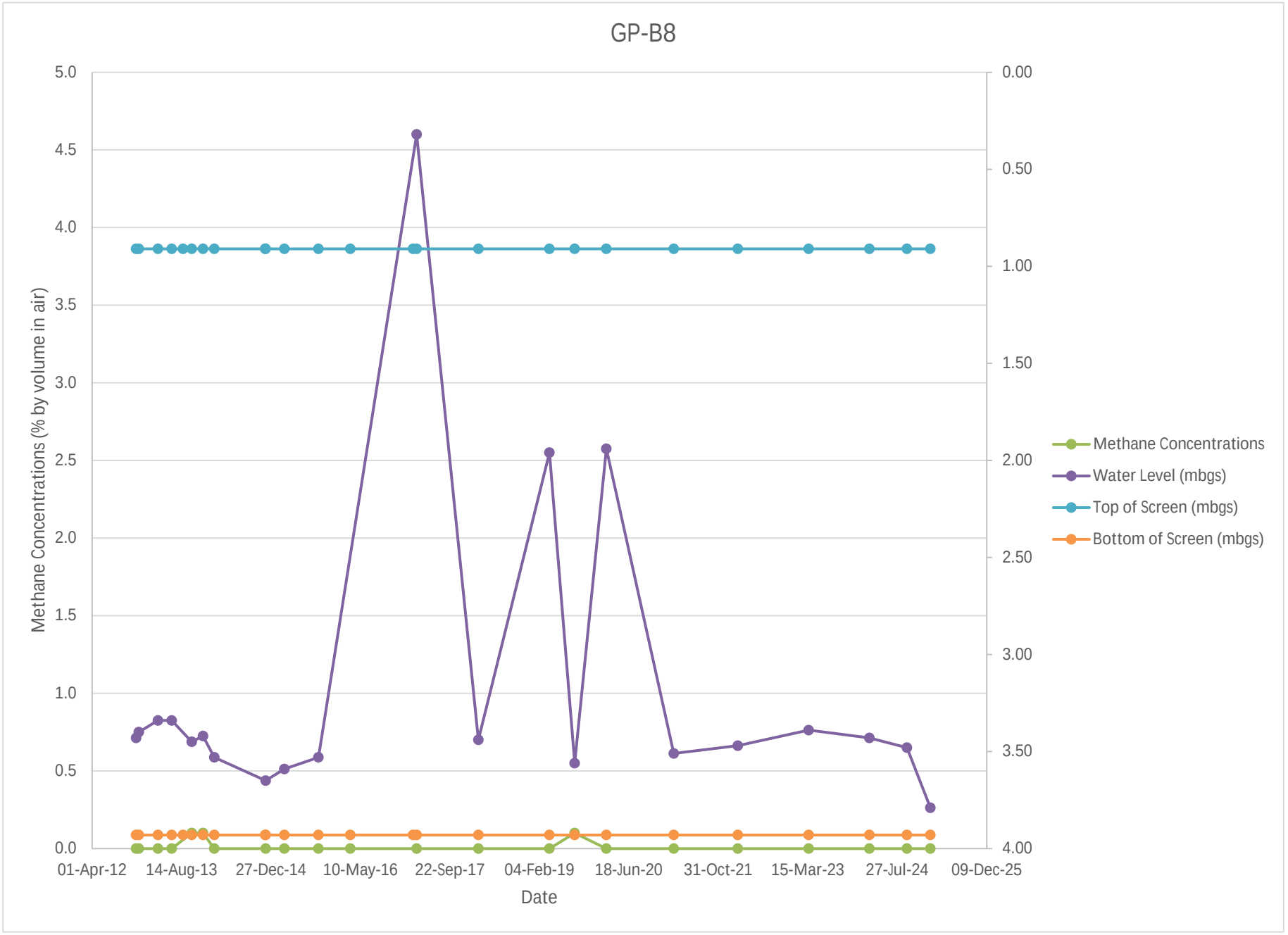
Revision #: 1.8
Date of Issue: 06 SEP 2024

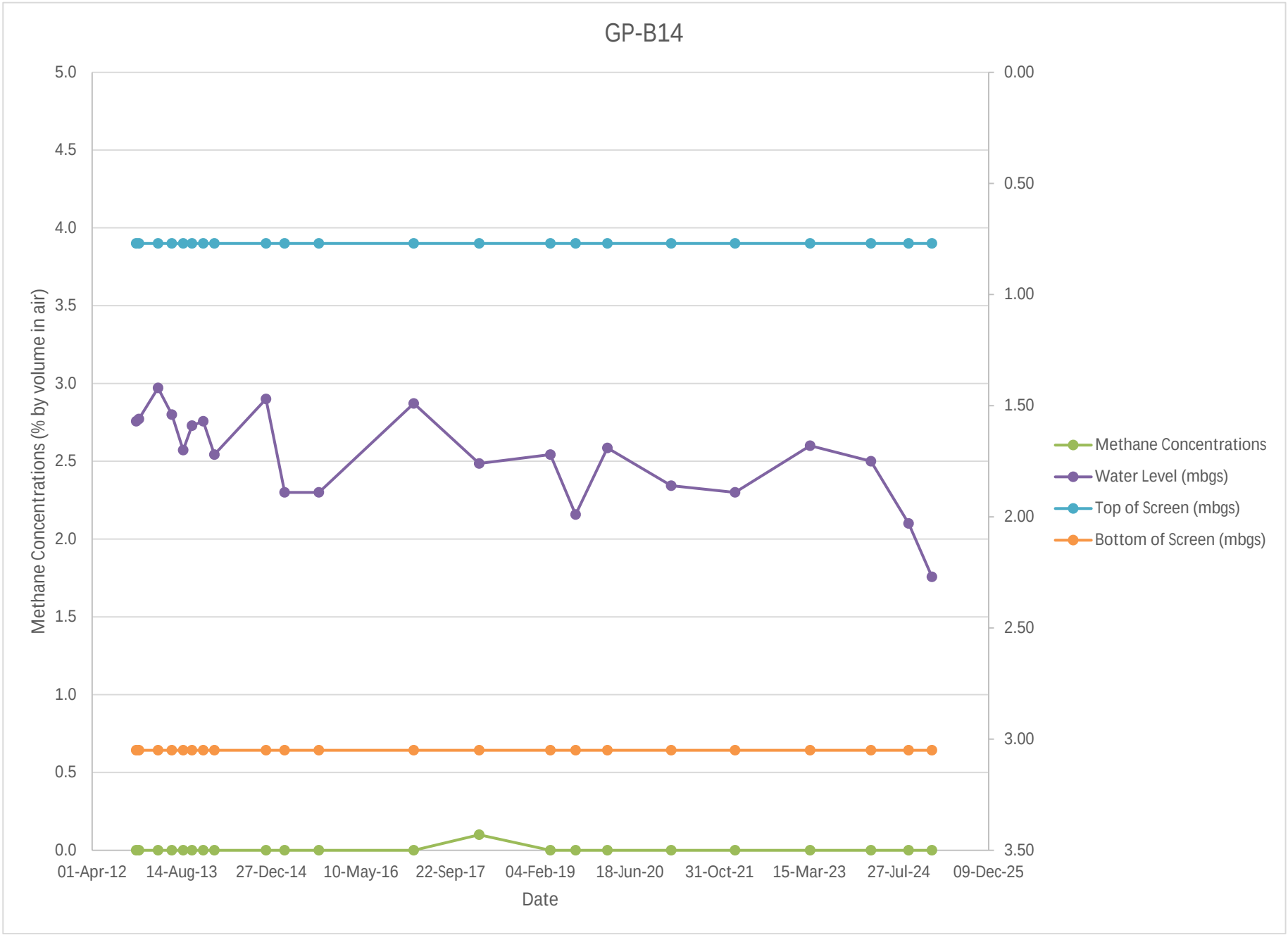
APPENDIX D

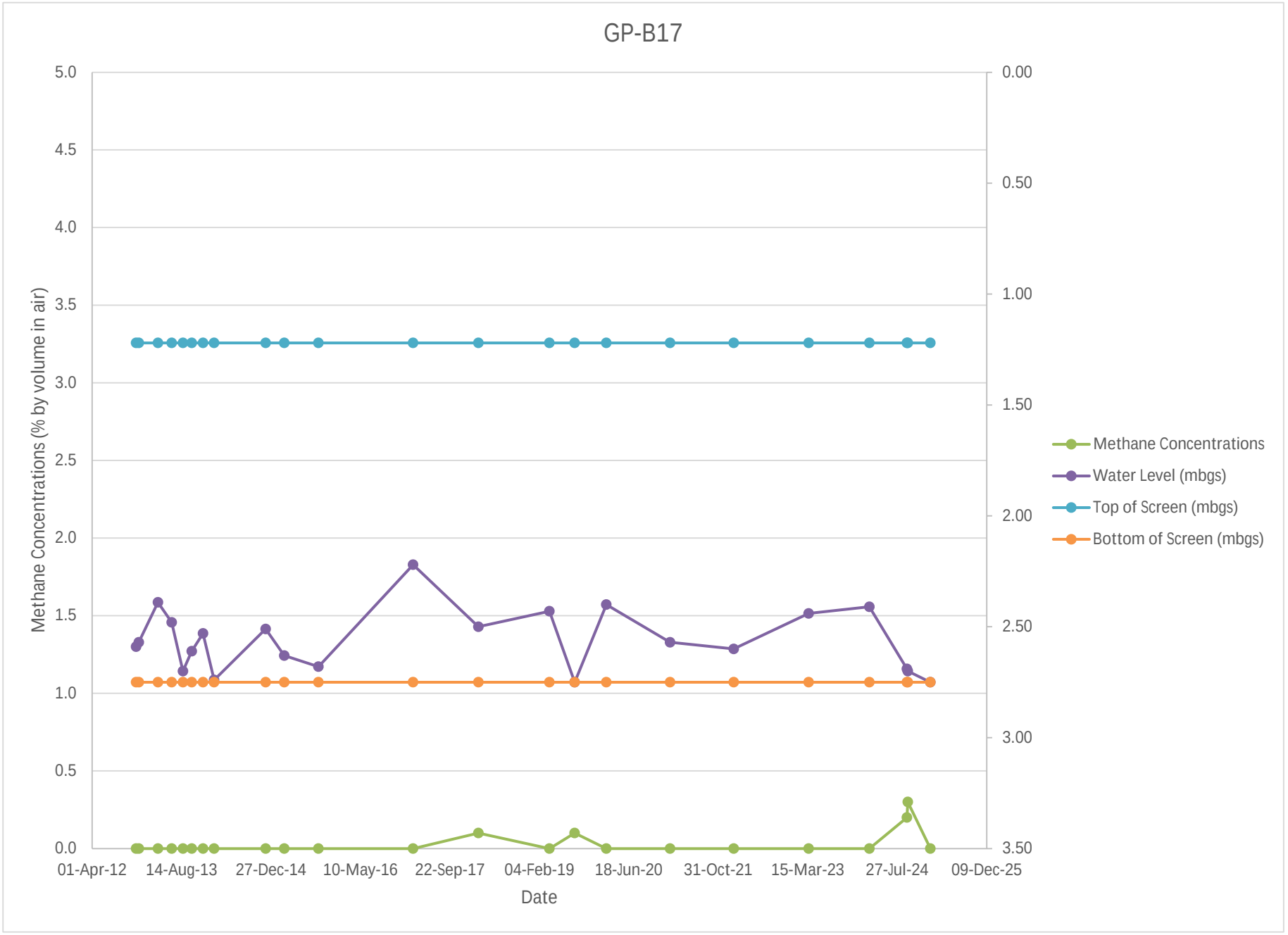
Historical Methane and Water Level Graphs

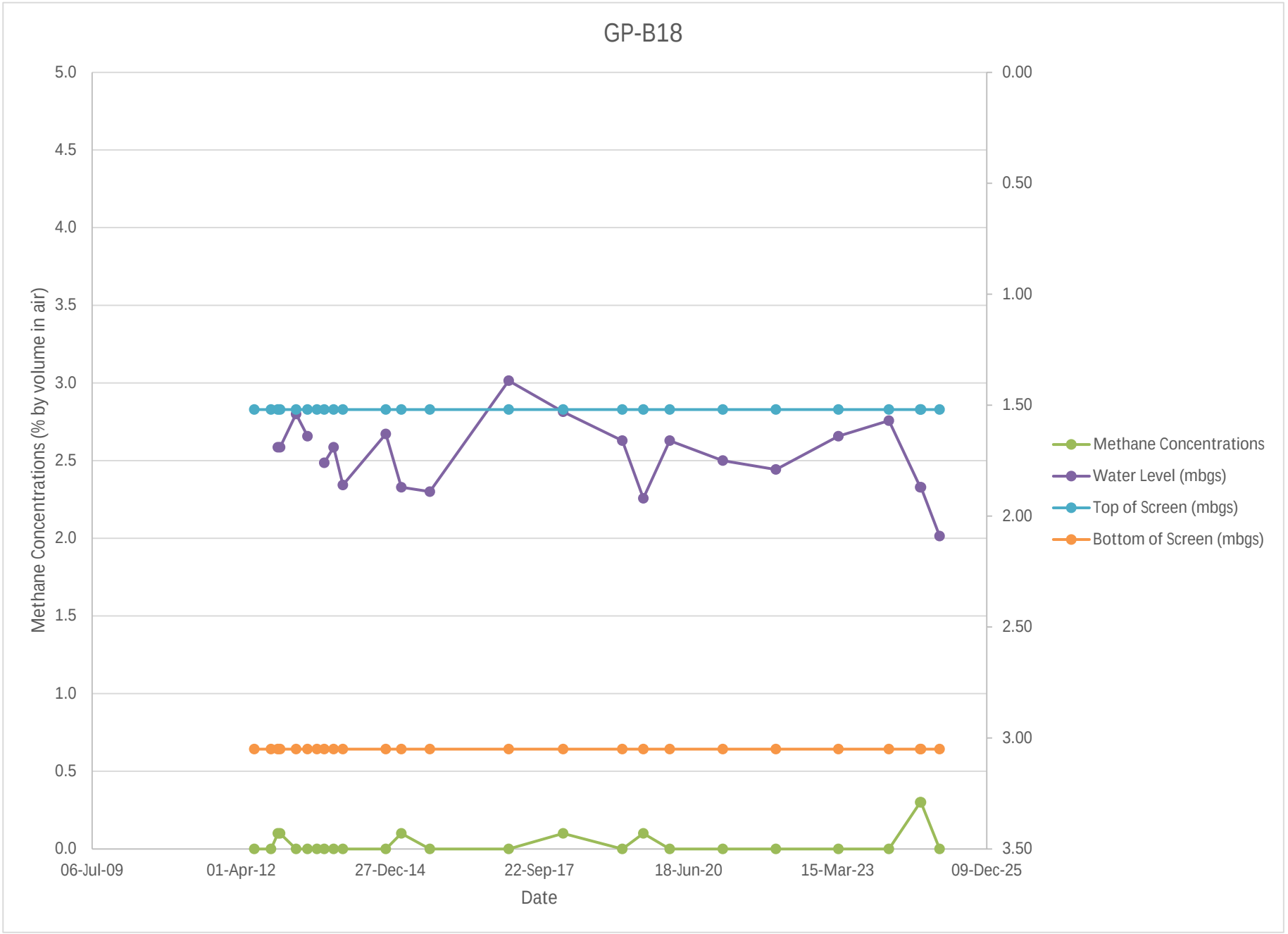

GP-B3
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
06-Jul-09
01-Apr-12
27-Dec-14
22-Sep-17
18-Jun-20
15-Mar-23
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B7
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
06-Jul-09
01-Apr-12
27-Dec-14
22-Sep-17
18-Jun-20
15-Mar-23
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B8
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B14
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B17
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B18
Methane Concentrations (% by volume in air)
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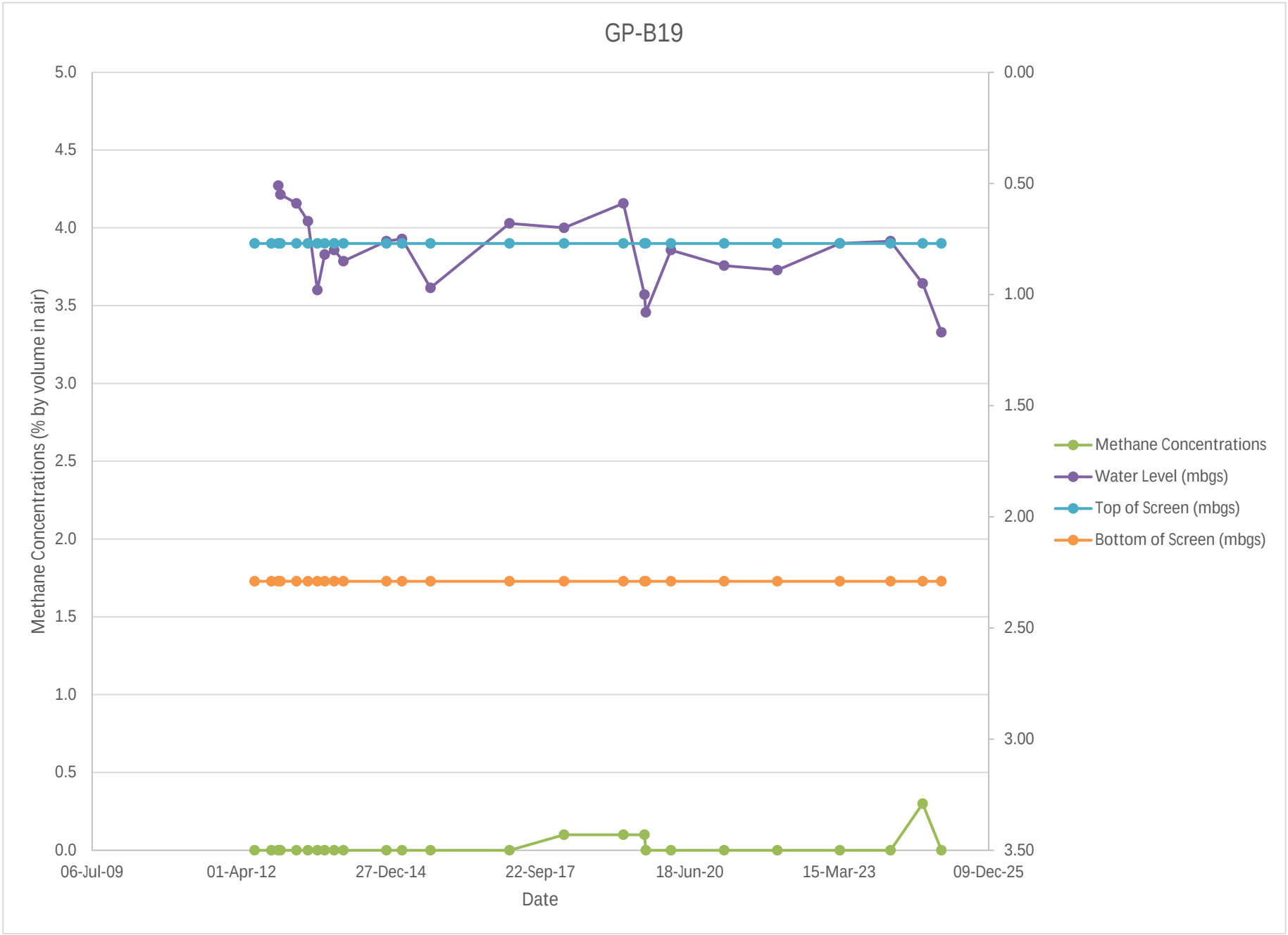
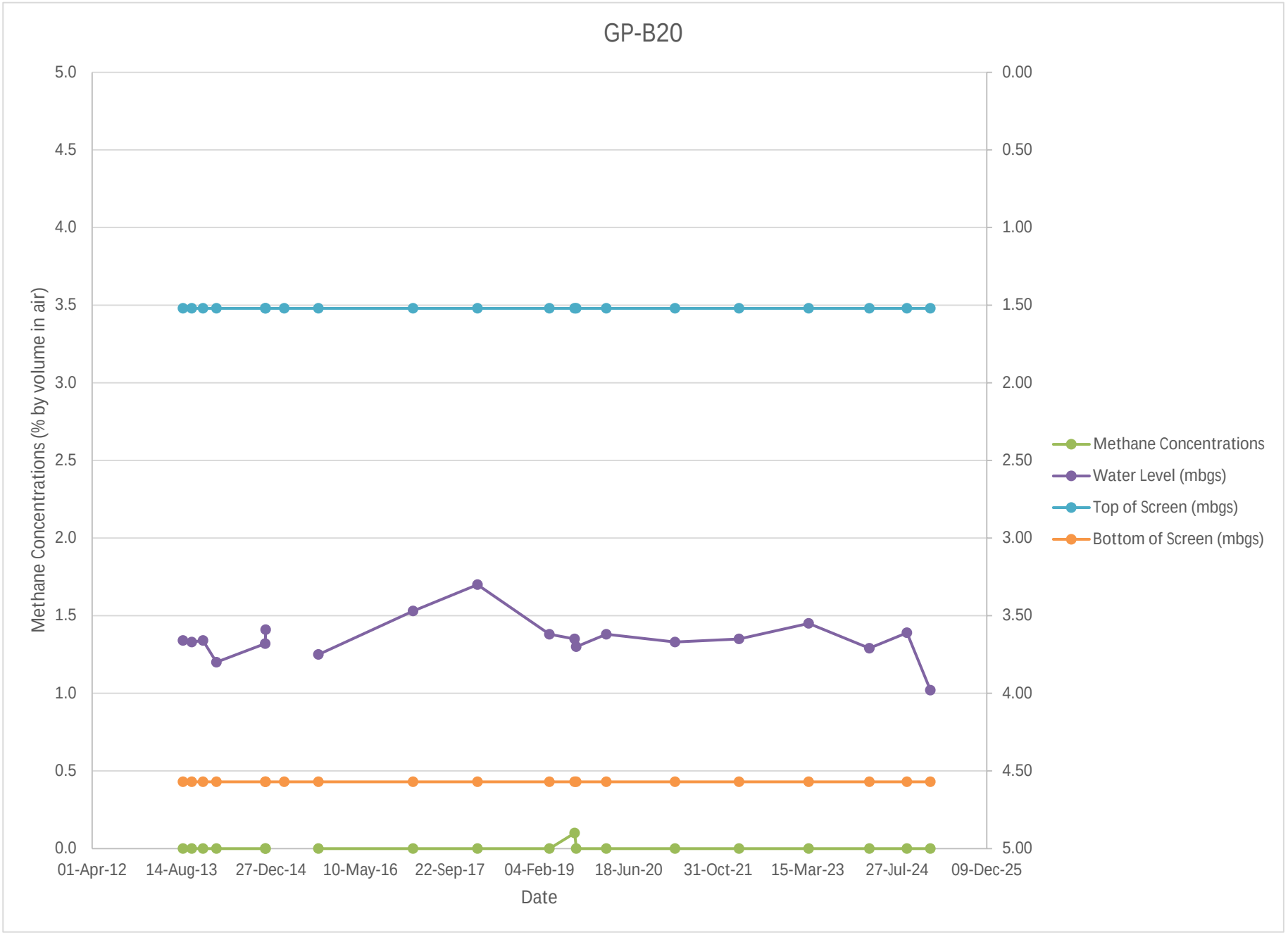
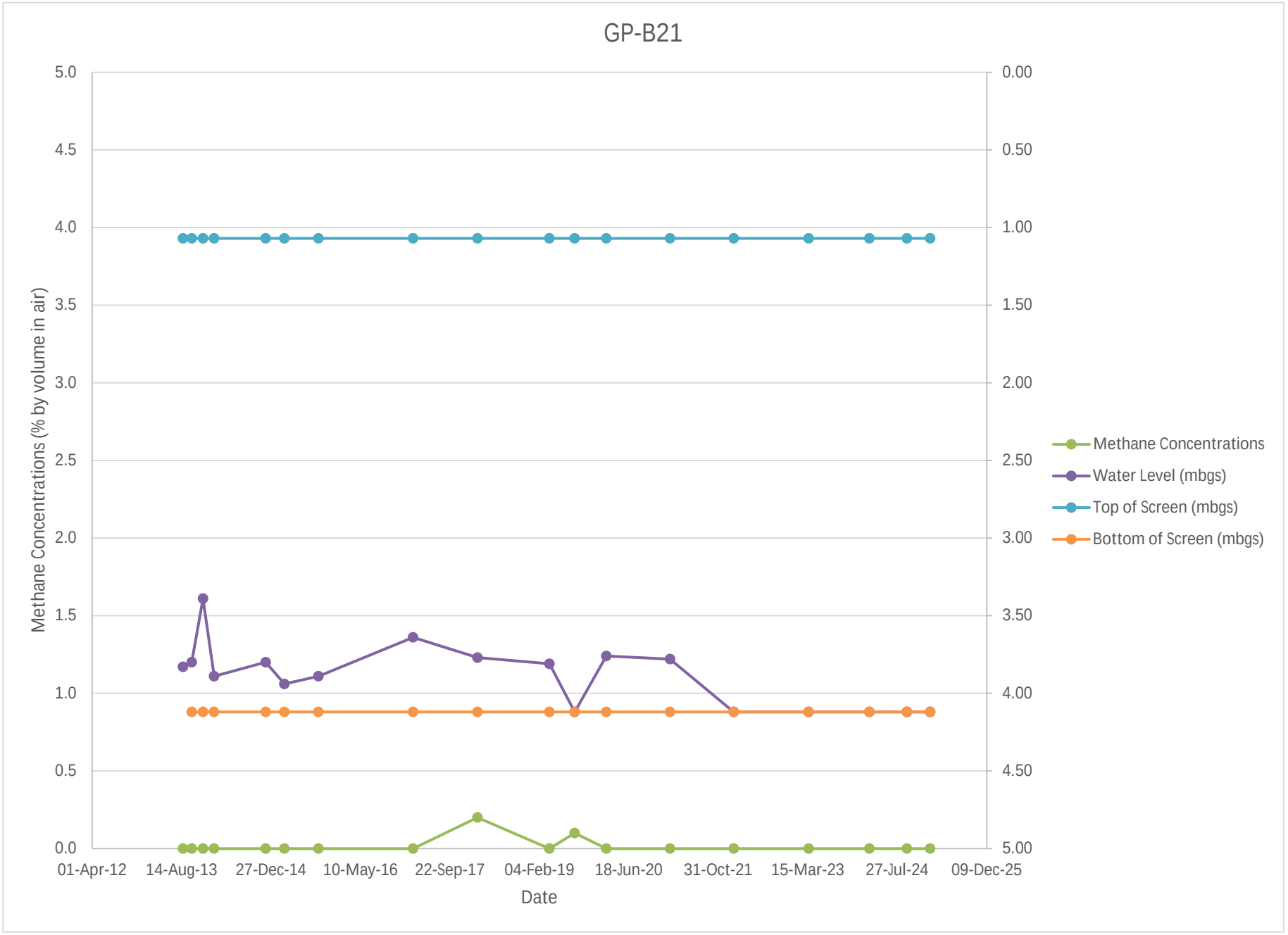
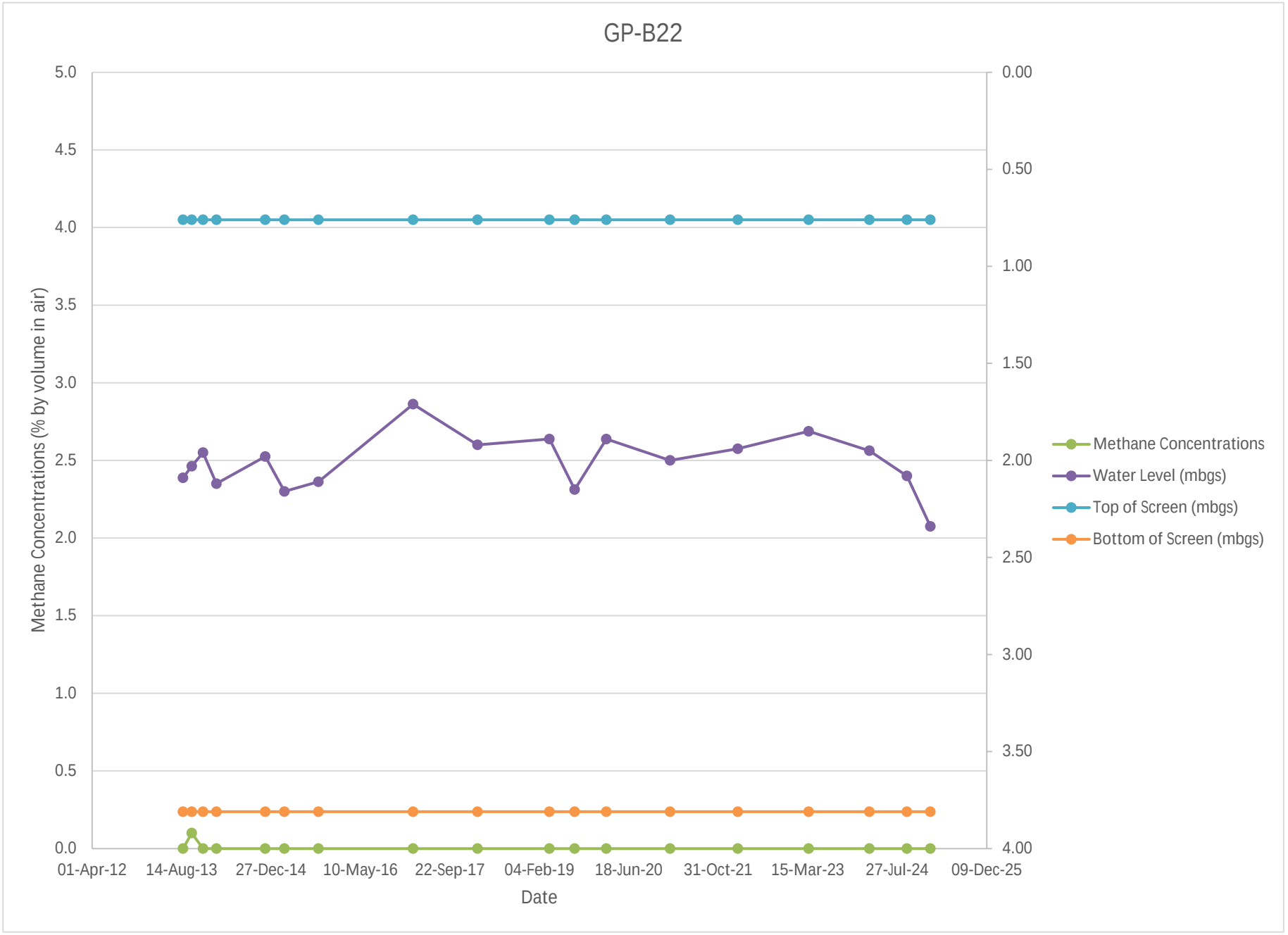
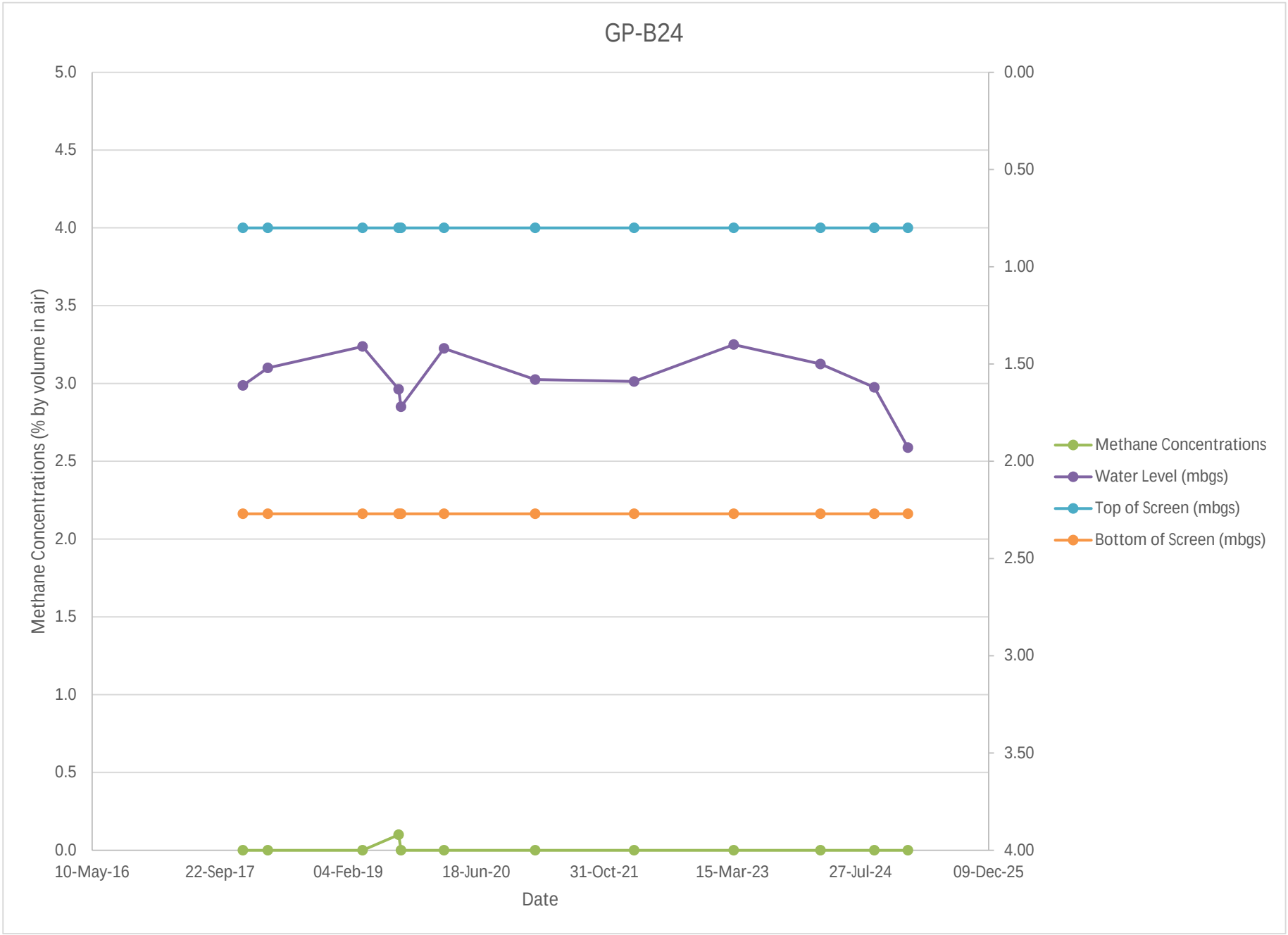
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
06-Jul-09
01-Apr-12
27-Dec-14
22-Sep-17
18-Jun-20
15-Mar-23
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B19
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
06-Jul-09
01-Apr-12
27-Dec-14
22-Sep-17
18-Jun-20
15-Mar-23
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B20
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)

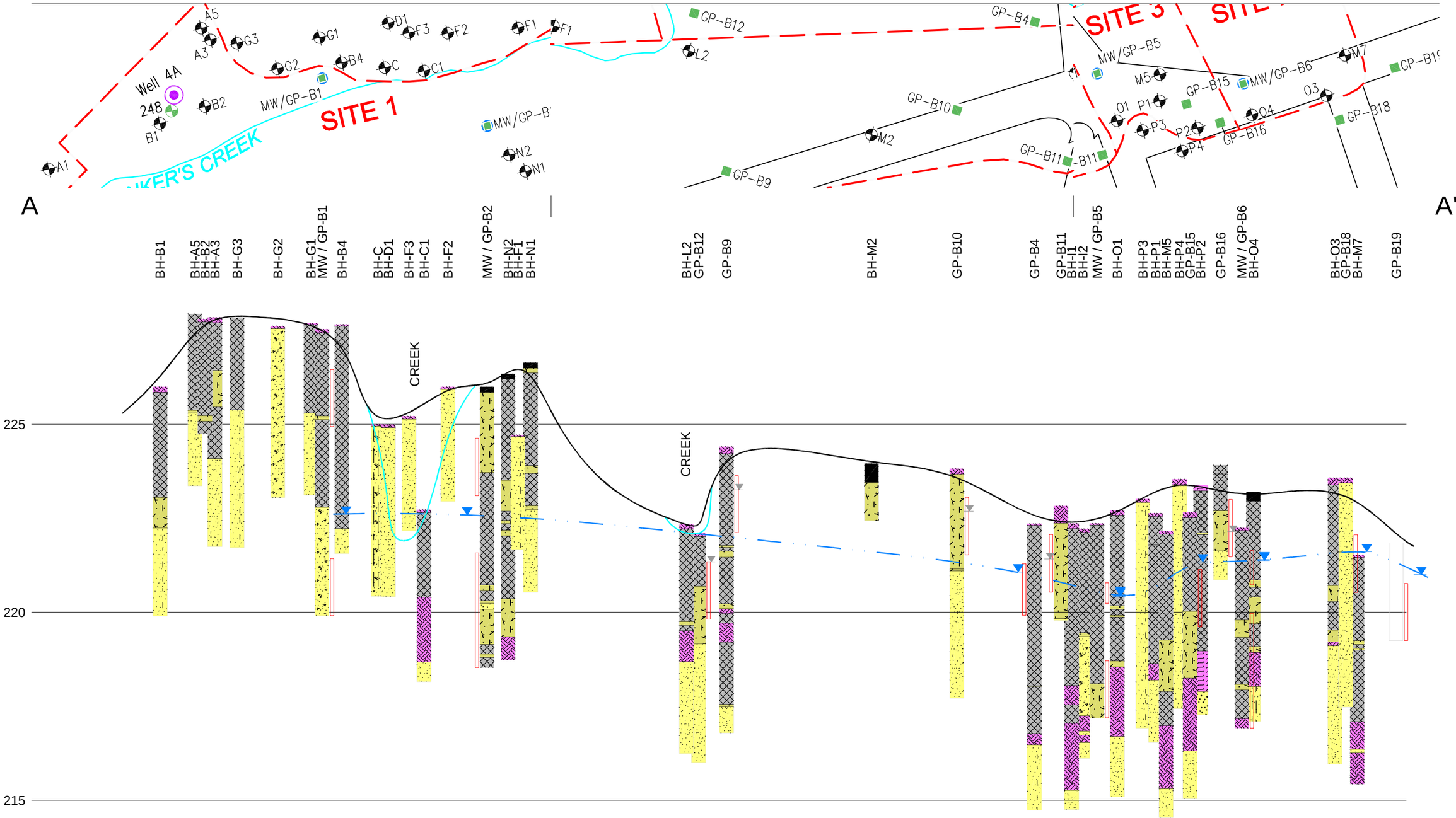

GP-B21
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B22
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
01-Apr-12
14-Aug-13
27-Dec-14
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)


GP-B24
Methane Concentrations (% by volume in air)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
10-May-16
22-Sep-17
04-Feb-19
18-Jun-20
31-Oct-21
15-Mar-23
27-Jul-24
09-Dec-25
Date
Methane Concentrations
Water Level (mbgs)
Top of Screen (mbgs)
Bottom of Screen (mbgs)

APPENDIX E

Site Section (Site 1)



Refer to Figure 2 for Legend and Notes

Golder Associates
Barrie, Ontario, Canada

SCALE	AS SHOWN
DATE	16 JAN 2013
DESIGN	
CAD	S BOWERMAN
CHECK	
REVIEW	
FILE No.	1111700043FASCT.dwg
PROJECT No.	11-1170-0043
REV.	

TITLE

SITE SECTION A-A'

HISTORIC WASTE DISPOSAL SITES
CITY OF BARRIE

FIGURE 9

PLOT DATE: April 12, 2013
FILENAME: T:\Projects\2011\11-1170-0043 (Barrie, Historic Landfills)\-FA-\1111700043FASCT.dwg

wsp.com