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Item No. Info Item 1
Environment and Sustainability Standing Committee
July 6, 2023

TO: Chair and Members of Environment and Sustainability Standing Committee

SUBMITTED BY: [redacted]

Cathie O'Toole, Chief Administrative Officer

DATE: July 4, 2023

SUBJECT: **First Lake Bacterial Analysis 2023**

INFORMATION REPORT

ORIGIN

April 2, 2021, Budget Committee (Standing Committee of the Whole on Budget) motion (Item No.5):

MOVED by Councillor Russell, seconded by Councillor Blackburn

THAT the Budget Committee request a briefing note detailing the measures and implications for including $150,000 in one-time funding for costs associated with a report on *E. coli* microbial analysis for First Lake within the proposed 2021/22 Planning and Development budget, to be considered in the parking lot as an operating over budget option.

MOTION PUT AND PASSED UNANIMOUSLY.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter, SNS 2008, c 39:
Section 7A The purposes of the Municipality are to (a) provide good government; (b) provide services, facilities and other things that, in the opinion of the Council, are necessary or desirable for all or part of the Municipality; and (c) develop and maintain safe and viable communities.

Section 79A (1) Subject to subsections (2) to (4), the Municipality may only spend money for municipal purposes if

(a) The expenditure is included in the Municipality's operating budget or capital budget or is otherwise authorized by the Municipality;
(b) the expenditure is in respect of an emergency under the Emergency Management Act; or
(c) the expenditure is legally required to be paid.

EXECUTIVE SUMMARY

The Municipality hired CBCL to conduct a bacterial study in First Lake, Lower Sackville from June to September 2022[1]. The purpose of this study was to determine the source of high *E. coli* bacteria concentrations observed in First Lake, which led to the removal of Kinsmen Beach from the municipality's supervised beach program. Sampling took place during five events, and samples were collected from Kinsmen Beach; 25 stormwater outfalls into First Lake; the inlet, outlet, and deepest point of First Lake, Second Lake, and Rocky Lake; and at a gully on Cavalier Drive.

The results of this study found *E. coli* in high concentrations indicating domestic wastewater is entering the stormwater system around First Lake. While avian, canine, and human markers of *E. coli* were found in samples collected as part of this study, human markers were found in the highest concentrations. Halifax Water has a Pollution Prevention program that investigates potential non-compliant connections to its systems and works with its customers to remedy these situations. During the summer of 2022 they identified two cracked wastewater laterals which were subsequently repaired in the fall. The repairs were located on the Southeastern portion of First Lake and would not directly impact bacteria levels at Kinsmen Beach.

Further investigation into the source of fecal pollution in First Lake, remediation using nature-based solutions to manage stormwater, and expansion of the Canines for Clean Water program should be pursued as next steps by municipal staff. Halifax Water continues to investigate the area surrounding First Lake, focusing primarily on areas near outfalls showing high concentrations of bacteria of human origin.

BACKGROUND

First Lake is located in Lower Sackville, Nova Scotia. It is roughly 80.9 hectares (ha) in size and reaches a maximum depth of 23 metres (m). Flow into First Lake is spring fed. Other inputs into the lake come via overland flow and stormwater drains. The outlet is on the southeast end of First Lake, with water flowing downstream into Rocky Lake and Second Lake.

Until 2020, the Municipality operated a supervised beach on First Lake at Kinsmen Beach. Due to repeated exceedances of Health Canada's acceptable level of *E. coli* for recreational use[2] at Kinsmen Beach, the Municipality decided to end lifeguard supervision indefinitely. In 2020, Kinsmen Beach was removed from HRM's supervised beach program. Signs were posted at that time advising residents of high bacteria concentrations at the beach, and to swim at their own risk. Despite the lack of regular testing and supervision, residents continue to use Kinsmen Beach frequently throughout the summer.

In 2016, the community opened a splash pad at the Kinsmen Centre, located on Kinsmen Beach in Sackville, to provide opportunities for residents to play and cool down throughout the summer. Treated water is supplied to the splash pad, so it is still available for use during high bacteria events.

Other recreational use at First Lake includes Sackawa Canoe Club, located on the lake's north shore. There is also a popular nature trail along First Lake that was built and is maintained by the Friends of First Lake Society. The trail's newest section opened in 2022 and connects with the Sackville Lakes Trail system.

[1] CBCL Final Report – HRM Pollution Control Study First Lake, Lower Sackville January 2023. https://www.halifax.ca/sites/default/files/documents/about-the-city/energy-environment/hrm-pollution-source-control-study.pdf

[2] Health Canada Guidelines for Canadian Recreational Water Quality – Third Edition. The full guidelines can be found online here: Page 9: Guidelines for Canadian Recreational Water Quality – Third Edition - Canada.ca.

DISCUSSION

2022 Bacterial Study

Consistently high *E. coli* levels in First Lake indicate the presence of fecal pollution. The Friends of First Lake Society started to collect samples in 2021 for *E. coli* analysis to track bacteria levels in First Lake, and an inlet channel near Kinsmen Beach. This data shows high *E. coli* levels persisted in First Lake in the years following the closure of the supervised beach.[3]

To determine the origin of this fecal contamination, the municipality contracted the consulting firm CBCL to conduct a pollution source control study in First Lake, as well as neighbouring Second Lake and Rocky Lake. The study sampled at Kinsmen Beach using the municipality's beach sampling protocols, in all three lakes at deep and shallow locations at the lakes' deepest points, at the inlet and outlet of First Lake, at the inlet of Rocky Lake, at the outlet of Second Lake, and at stormwater outfalls along the shoreline of First Lake. Due to the length of the study, an on-line link has been provided as Attachment 1.

The results of the *E. coli* analyses showed significant fecal contamination in First Lake, with all but two outfalls (FLN-3 and FLS-2, Figure 1.) showing concentrations exceeding the recreational guideline value of 400 colony forming units/100mL (CFU) in at least one sampling event. Tables showing all measured *E. coli* concentrations can be found in the CBCL final report. The *E. coli* concentration at the inlet to First Lake ranged from 167 CFU on August 10 to above the 500 CFU detection limit on September 27, after Hurricane Fiona.[4] All samples taken from Rocky Lake, Second Lake, and the deep station and outlet in First Lake were below the receational guideline value at all five sampling events.

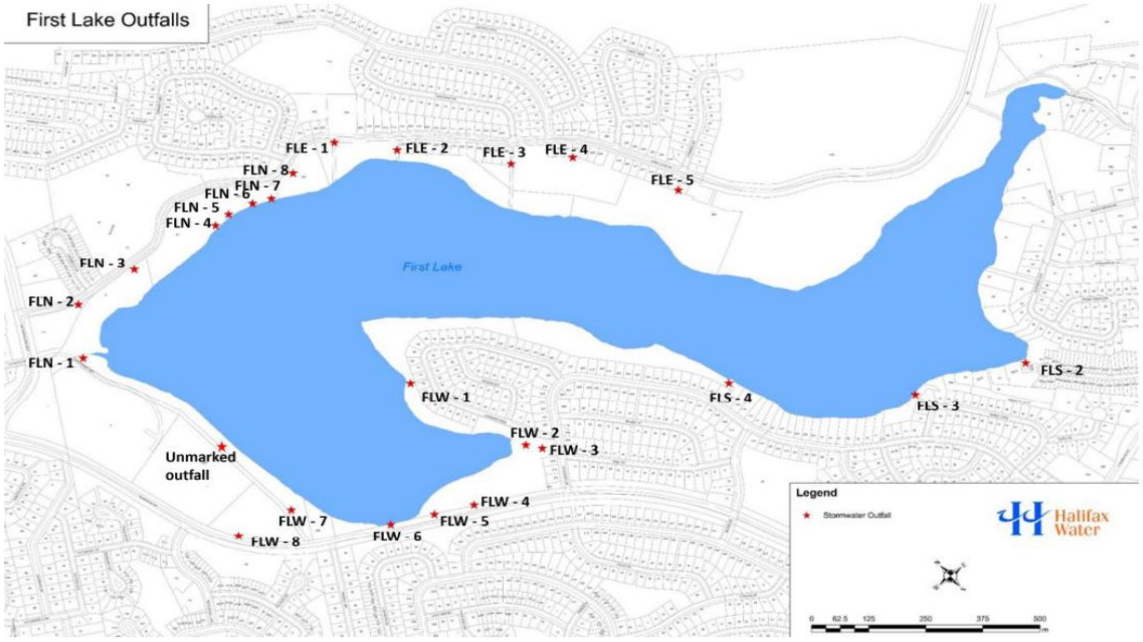


Figure 1: Halifax Water's stormwater outfalls on First Lake.

[3] All water quality data collected by the Friends of First Lake Society is publicly available on Atlantic DataStream, and is available online here: DataStream (atlanticdatastream.ca)

[4] It is noted that during and after Hurricane Fiona, Halifax Water experienced system upsets due to power and communication interruptions. In addition, during a significant rain event such as a Hurricane, there may be various other factors contributing to this result.

Several of the stormwater outfalls had low or no flow during at least one sampling event. A further eight outfalls had no flow at any sampling event. Samples were not collected for analysis from outfalls with insufficient flow.

Samples taken from Kinsmen Beach were collected and interpreted according to HRM's beach monitoring protocols. At all five sampling events, five water samples were collected at equidistant locations along the beach and analyzed to find the *E. coli* concentration. Results were reported for each sample separately, and an average, or geomean, of these results was calculated. If the geomean was above 200 CFU, or if any single sample was above 400 CFU, the beach (if supervised) would be closed. Of the five sampling events, three took place during the regular supervised beach season, from July 1 – August 31. The samples collected on August 10, a dry weather sampling event, and September 27, a wet weather sampling event, both exceeded the acceptable geomean concentration for keeping a beach open.

Stormwater with an *E. coli* concentration of 10^4 CFU/100mL or greater may be indicative of domestic wastewater entering the stormwater system. This is typically through cross connections, where a sanitary sewer is connected, incorrectly, to a storm sewer, or contributions from improperly functioning on-site septic systems. In First Lake, eight outfalls exceeded this threshold, described in Table 1,[5] indicating a potential cross connection or on-site septic contributions.

Table 1: E. coli *Concentration at Stormwater Outfalls Indicating Fecal Contamination.*

***E. coli* Concentration, CFU/100mL**					
Outfall	**15-Jun**	**14-Jul**	**10-Aug**	**18-Aug**	**27-Sep[6]**
FLN-2	200*	14,560	1,103	5,390	25,000*
FLN-8	200*	9,691	138	515	10,589
FLW-1	200*	20,000*	140,414	26,877	2,500*
FLW-2	200*	20,000*	25,338	9,218	1,715
FLW-3	200*	5,377	2,388	20,000*	25,000*
FLW-8	200*	20,000	305	3,498	9,177
FLS-3	200*	13,064	4,873	265	25,000*
FLS-4	200*	20,000*	38,719	39,985	5,864

* Results are above the laboratory's detection limit

Microbial Source Tracking

The June 15 and September 27 sampling events took place within 24 hours of a significant rainfall and are classified as wet weather sampling for the purpose of this study. Neither wet weather sampling event captured the 'first flush' of water at the beginning of a storm, which tends to contain higher concentrations of contaminants picked up from standing water and dry ground.

Samples were collected for microbial source tracking (MST) analysis at the Centre for Water Resources Studies (CWRS) at both wet weather sampling events. This is to determine whether the *E. coli* identified in First Lake came from a human, canine, or avian sources.

[5] Values marked with an asterisk represent concentrations above the detection limit of the equipment used for analysis.

[6] Samples were all taking prior to the cracked wastewater lateral being repaired.

This study found that 77% of samples collected on June 15 and 65% of samples collected on September 27 contained human fecal source markers. Human markers were the majority identified at 76% of sites sampled on June 15 and 69% of sites sampled on September 27. Human markers were the dominant source of contamination at Kinsmen Beach.

Most properties surrounding First Lake have been connected to centralized wastewater services since the mid-1980s. There are several properties on the southern end of the lake still using on-site septic systems for wastewater treatment. Sampling in this area does not indicate these systems are contributing to high *E. coli* concentrations in First Lake.

Staff consulted with Nova Scotia Environment & Climate Change (NSECC) to determine if historic on-site septic systems are potentially contributing fecal contamination to First Lake. According to NSECC, domestic on-site septic systems typically do not contribute fecal material to a water body more than two years after they are decommissioned if done properly. Even if an improperly decommissioned holding tank still contained human waste and was leaching into First Lake, it is likely this would appear as a non-point source contributor of *E. coli*, rather than as a high concentration from a stormwater outfall.

Canine markers of *E. coli* were found in all but two samples from the June 15 event, and all samples from the September 27 event. However, canine markers were found at relatively low concentrations at almost all sites compared to human markers. Particularly at the September sampling event, canine markers were only found in concentrations indicating significant fecal contamination at 30% of sampling locations.

Avian markers were found in 40% of samples collected on June 15 and 32% of samples collected on September 27. Avian markers were especially high in the inlets and outlets of Rocky Lake, First Lake, and Second Lake. This is consistent with where waterfowl have been observed.

Ongoing Actions

Throughout the summer of 2022, Halifax Water (HW) identified a cracked lateral potentially contributing fecal contamination to First Lake. The repair was completed after the conclusion of this study, so the results shared in this report do not reflect potential improvements to water quality from the repair. The cracked lateral does not account for the extent of human fecal contamination found in the lake. Furthermore, the location of the cracked lateral identified is not near enough to Kinsmen Beach to account for the ongoing high *E. coli* concentrations that led to its removal from the supervised beach program. HW continues to investigate the area surrounding First Lake, focusing primarily on areas near outfalls showing high concentrations of bacteria of human origin. HW has a Pollution Prevention program and a catch basin cleaning program that they will continue to operate.

HW operates a wastewater pumping station upstream from the inlet into First Lake at Kingfisher Way. HW's routine monitoring does not indicate leaks from this pumping station entering the lake's inlet stream. The inlet opens into First Lake just southwest of Kinsmen Beach and has displayed consistently high *E. coli* concentrations both during this study and in ongoing monitoring by the Friends of First Lake Society, including human markers observed as part of this MST analysis. If *E. coli* concentrations from The Friends of First Lake Society's monitoring remain high, staff will consider further investigation into potential sources of fecal contamination into the inlet stream, working with HW to find solutions.

The Friends of First Lake Society has been collecting samples for *E. coli* analysis at Nova Scotia Health Authority's medical laboratory since July 2021, which provides ongoing indication of fecal loading in the inlet to First Lake. Analysis at this lab costs $40/sample. In 2023, five samples will be submitted monthly from May-October. Currently, this sampling is being supported by discretionary funds from the local area Councillor, Paul Russell. Members of the Friends of First Lake Society have received training from qualified municipal staff on the proper methods of sample collection and are active members of the LakeWatchers baseline water quality monitoring program.

Roughly 50% of 2021 data reported by the Friends of First Lake Society on Atlantic DataStream[7] shows *E. coli* values above the Health Canada Recreational Water Quality Guidelines. Staff will provide funding to the Friends of First Lake Society in 2024 and 2025 to support this analysis while further remediation actions are carried out. If this analysis does not indicate a decrease in bacteria concentrations after the 2025 season is complete, staff will consider investigate potential sources of contamination in the lake.

In October 2022, staff attended events at the Sackville Lakes Trail and the First Lake Trail to promote the municipality's Canines for Clean Water program in anticipation of the detection of canine sources of bacteria in First Lake. This is a program aimed at dog owners to highlight the importance of picking up after their dogs and raise awareness of the connection between dog waste and poor water quality outcomes in lakes. This program was initially developed based on a 2019 staff report recommending management strategies for Lake Banook and Lake Micmac. Staff are continuing to expand this program across the municipality by partnering with community stewardship groups like the Friends of First Lake Society to deliver programming.

At this time, Kinsmen Beach should not be included in the supervised beach program. Before opening a supervised beach at a new location, staff must conduct two years of water quality sampling to determine if the site can conform with the recreational water quality guidelines. While steps have been taken to identify and remediate sources of fecal contamination in First Lake, *E. coli* concentrations are still too high, especially at Kinsmen Beach, to consider reopening. In addition to ongoing action by HW outlined above, further remediation should be undertaken around First Lake, so all potential sources of fecal contamination are addressed.

Land use patterns in areas surrounding urban and suburban water bodies can be significant determinants of the concentration of nutrients and other pollutants in the water column. As further development and other human activity continues around First Lake, the impacts on surface water will compound. These impacts should be considered more holistically as the population of the municipality grows, to preserve, protect, and restore the integrity of natural spaces. Creating individual strategies to manage individual lakes on a case-by-case basis will be ineffective in preventing degradation of water quality and the aquatic environment. Lakes cannot be managed in isolation as they exist as part of larger watershed systems, and impacts of human activity can cascade throughout a watershed. Without an effective management strategy at the watershed scale, the municipality can continue to expect decreasing water quality conditions in its urban lakes.

In addition to the proposed and ongoing remediation actions outlined above, staff will pursue partnership opportunities to use nature-based solutions to capture stormwater flowing overland into First Lake in and around Kinsmen Beach. Enhanced vegetated swales will be considered. These are engineered depressions designed to hold water and allow for high rates of infiltration into soil. They are planted with deep-rooted, water tolerant native vegetation to reduce standing water and overland flow.

Nature-based solutions provide the added benefits of:

1. Increased pollinator habitat;
2. Improved soil permeability and bioretention;
3. Filtering contaminants from water as it passes through soil media;
4. Reduced grazing habitat for waterfowl; and,
5. Aesthetic interest.

[7] Atlantic DataStream is an open-access portal for sharing water quality data collected in Atlantic Canada. More information on the portal and their other programming can be found online here: Atlantic DataStream

FINANCIAL IMPLICATIONS

To support ongoing bacteria analysis by the Friends of First Lake Society, a contribution agreement for $500 per year will be provided for samples collected at five locations monthly for six months from May to October inclusive. Sample analysis under Environment & Climate Change's current standing offer with BV Labs costs $16 per sample plus disposal fees, for a total of $500 each year in 2024 and 2025. These costs can be covered with existing operating funds for water testing in D935.

The next step to continue investigations of cross-connections, sampling after upgrades to the pumping station on Kingfisher Way, and increased catch basin maintenance fall under the responsibility of HW. Municipal staff will work with HW to support these actions, but there are no financial implications for this work at this time.

COMMUNITY ENGAGEMENT

The bacterial analysis described in this report was conducted primarily at the request of the community around First Lake. Kinsmen Beach is still a popular location for swimming, and the community has voiced their concerns about the lack of water testing, and related uncertainty about the safety of using the beach.

Members of the Friends of First Lake Society were involved throughout the study. Engagement with this group included participation in an initial site visit locating sampling sites and stormwater outfalls, using their data from previous sampling events to inform the study, and obtaining anecdotal evidence on historical site conditions.

ENVIRONMENTAL IMPLICATIONS

The fecal contamination observed in this study will contribute nutrients to First Lake. Excessive nutrient input into a lake can cause excess nuisance aquatic plant growth, increased instances of harmful algal blooms, and decreased dissolved oxygen concentration in the water column. Taking no further action to remediate the quality and quantity of water entering First Lake will lead to further deterioration of the lake's health. High *E. coli* concentrations pose a risk to public health. Residents continue to use First Lake recreationally, particularly at Kinsmen Beach and Sackawa Canoe Club.

Expanded programming and further investigations at First Lake will facilitate positive environmental outcomes. Reducing sources of fecal contamination will reduce the overall bacteria load in First Lake, directly improving the health of the aquatic environment. Fecal contamination also provides nutrients to a lake system, increasing the risk of eutrophication. Removing potential sources of nutrients from entering First Lake will help maintain its current trophic status, reducing the risks outlined in the Risk Consideration section of this report.

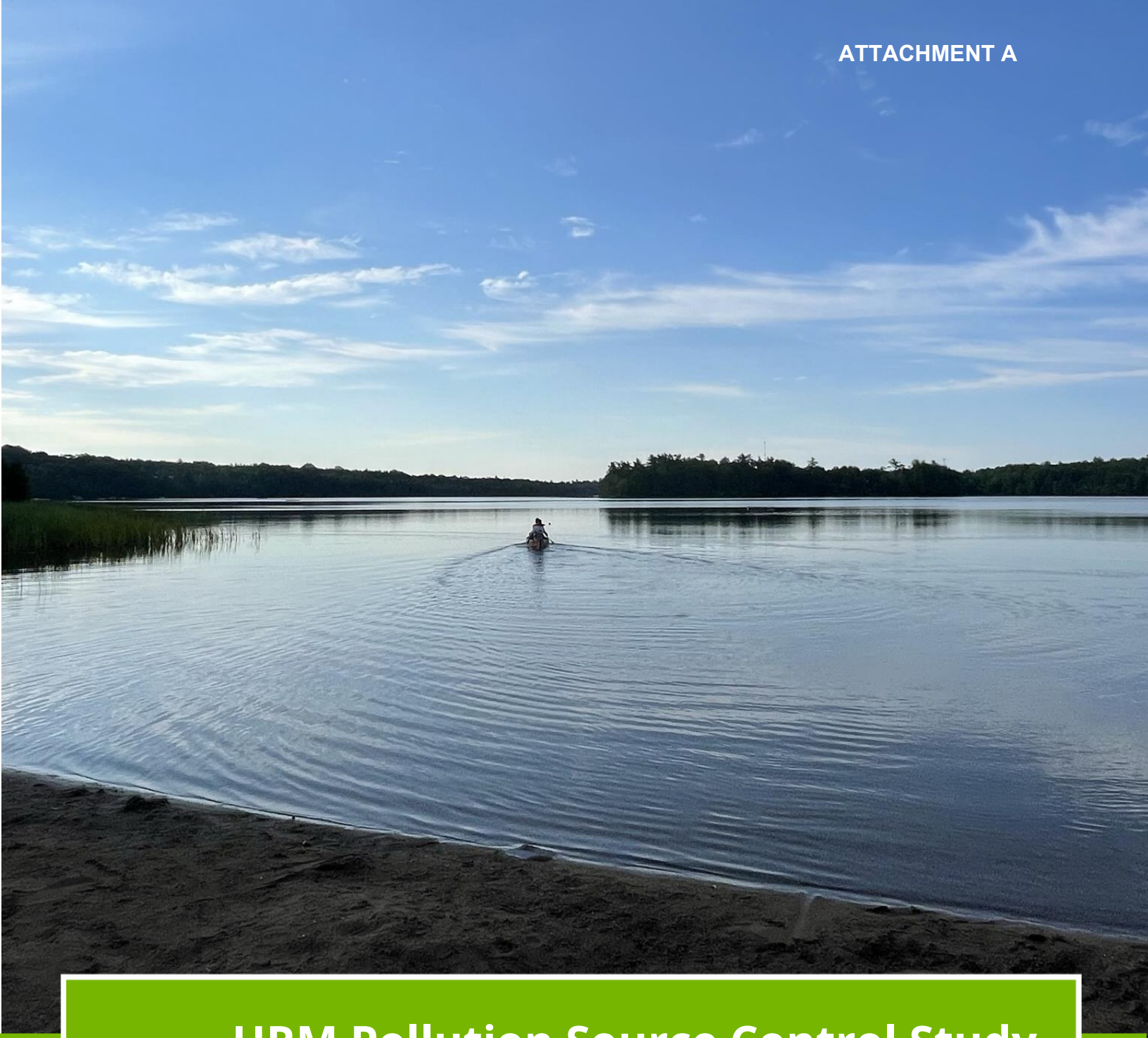
ATTACHMENTS

Attachment A. HRM Pollution Source Control Study

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Elizabeth Montgomery / Water Resources Specialist / Environment & Climate Change / Property, Fleet & Environment / 902.943.1954

ATTACHMENT A



HRM Pollution Source Control Study

First Lake, Lower Sackville

Final Report

CBCL

220804.00 • January 2023

	Draft Report	MC	12-16-2022	MF/MB
	Final Report	MC	01-20-2023	MF/MB
Issue or Revision		**Reviewed By:**	**Date**	**Issued By:**

Project No. 220804.00

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January 31, 2023

Emma Wattie
Manager, Environment
Environment & Climate Change: Property, Fleet & Environment
Halifax Regional Municipality
wattiee@halifax.ca

Dear Ms. Wattie:

RE: ***HRM Pollution Source Control Study – First Lake***

Please see attached for the final report of the HRM Pollution Source Control Study for First Lake. If you have any questions or comments, please do not hesitate to contact the undersigned.

Yours very truly,

CBCL Limited

Prepared by:
Melissa Fraser, M.A.Sc., P.Eng.
Process Engineer

Reviewed by:
Mike Chaulk, M.A.Sc., P.Eng.
Manager, Process Engineering

Michael Brophy, M.A.Sc.
Process Specialist

Project No: 220804.00

Contents

Appendices

1 Background

1.1 Introduction

Kinsmen Beach, located on First Lake in Lower Sackville, was historically part of the Halifax Regional Municipality (HRM) municipal beach program. The beach was used recreationally and would have active lifeguarding during the summer months. As a HRM recreation beach, Kinsman Beach was part of the municipal beach monitoring program, which included regular bacteria sampling. With several summers of having bacteria results exceeding the recreational guidelines, the beach was removed from the monitoring program as of 2020 and no longer has a lifeguard on duty. However, the beach, surrounding parks and walking trails are regularly used by the community and the active Sackawa Canoe Club offers many programs on the lake during the summer months when the bacteria exceedances are often experienced. With the frequent use of the area there is growing public interest in reopening the beach again for recreational activities.

With bacteria sample results exceeding the Health Canada recreational guidelines, an understanding of the potential sources of contamination and the overall water quality of the lake system is needed to make recommendations for removing the sources. Previous studies on First Lake completed though Dalhousie University, Acadia University, HRM and Friends of First Lake Society worked to determine the overall water quality of the lake and to assess sources of fecal contamination that could contribute to the sample exceedances in the lake. To expand on the work already completed to investigate the sources of fecal contamination, CBCL was engaged by HRM to provide consulting services to complete a Pollution Source Control Study for First Lake.

The objective of the project was to conduct a scientific study to form the basis of recommendations or options that could be used by HRM to identify, track and reduce sources for *E. coli* into First Lake with the goal of being able to reopen Kinsmen Beach for swimming, boating and other primary contact based activities. This was completed through:

- A field sampling program to collect *E. coli* samples at 35 sampling locations including Kinsmen Beach, Halifax Water stormwater outfalls, nearshore samples and reference lake samples.
- Microbial Source Tracking (MST) study to differentiate potential *E. coli* markers between human, dog and avian sources.
- Watershed modelling to estimate surface runoff *E. coli* loading rates into First Lake.

The field sampling program was completed between June to September 2022. Sampling was completed in First Lake with reference samples collected in Second Lake and Rocky Lake for comparison purposes. Sample analysis, watershed modelling and reporting was completed in the Fall of 2022. The following report outlines the findings of the pollution control study.

2 Methodology

2.1 Location of Work

First Lake, located in Lower Sackville, is approximately 80.9 ha in size with a maximum depth of 23 m. It is approximately 22 m above sea level. First Lake is spring fed and its inlet is located at the northwest end of the lake. It also receives input from overland flow, stormwater drains along the shoreline, and small upstream road-side ditches. The outlet is positioned on the southeast end of the lake which eventually drains into Rocky Lake. Some outlet flow is also directed towards Second Lake.

Second Lake is located to the northeast of First Lake and is approximately 90.3 ha in size with a maximum depth of 14 m. Second Lake has remained more isolated from development than First Lake throughout most of its history. It is part of the Sackville Lakes Provincial Park, which is a 293-ha natural environment park that is comprised of old growth forest, wetlands, and past drumlins. Second Lake is a near-urban environment with the development of trails and canoe access for the community.

Rocky Lake is 141.6 ha in size and is fed by First Lake through its northwest inlet. It has a maximum depth of 11 m, which is typical of Nova Scotia lakes. It is located next to Bedford Industrial Park and has a causeway with a railroad that divides the lake.

A summary of the characteristics of each lake is provided in Table 1 and Figure 1 shows the locations of the lakes in Lower Sackville.

Table 1: Characteristics of Lakes in Study

	First Lake	Second Lake	Rocky Lake
Surface Area (ha)	80.9	90.3	141.6
Maximum Depth (m)	23	14	11

Figure 1: Aerial Photo of First Lake, Second Lake, and Rocky Lake

2.1.1 Sample Locations

Table 2 provides a summary of the locations that were sampled throughout the study. The sites to be monitored at minimum were outlined in the initial request for proposal from HRM and included stormwater outfalls around First Lake, inlet and outlet samples of the three lakes, deep lake samples in each lake and specific sampling of Kinsmen Beach. Initial site reconnaissance was conducted with HRM, Halifax Water, Friends of First Lake, and Councillor Paul Russell to locate stormwater outfalls around First Lake. Nineteen of the outfalls shown on the Halifax Water map were found and most were accessible from walking paths. Several outfalls were not located during the initial site visit, but most were later identified during sampling events. Additional sampling points were identified upstream of FLN-1, where Friends of First Lake had sampled previously and detected *E. coli*, and an unmarked outfall was found on the trail behind the Sackville Sportsplex.

Table 2: Sample Locations Descriptions

Sample ID	Location	Notes
First Lake	At depth and shallow stations where the lake is deepest, inlet and outlet, and stormwater outfalls along the shoreline.	Has experienced water quality issues in the past and the lake is used by the community through Kinsmen Beach, the Sackawa Canoe Club, and residential home lakefronts.
Kinsmen Beach	Located in First Lake, near the inlet fed by several storm water drains and road-side ditches.	Beach removed from HRM's beach supervision program due to *E. coli* levels and frequent closures, however residents continue to use it without supervision and testing.
Second Lake	At depth and shallow stations where the lake is deepest, and the outlet.	Not associated/ no connections with First Lake. Less urbanized area for comparison to First Lake water quality.
Rocky Lake	Deep and shallow stations where the lake is deepest, and the inlet.	First Lake drains into Rocky Lake, samples collected to see the degree of impact First Lake water quality may have on Rocky Lake.
Stormwater Outfalls	Urban surface water discharges into the lake. Functioning as major stormwater discharge point with baseflow from natural inputs.	24 stormwater outfalls were identified by Halifax Water. All were located but only 17 were sampled throughout the study. An additional outlet was found behind the Sackville Sportsplex which was included in the study.
Halifax Water Outfall Pipe	Chandler Drive, Lower Sackville, NS.	Included in study following initial site visit

Table 3 provides a summary of the sample location IDs that were used during the sampling events. Corresponding Halifax Water identifiers are included in the table when applicable for reference. Figure 2 shows the approximate location of the identified stormwater outfalls on First Lake.

Table 3: Sample Locations as used for Sample Identification

Lake	Sample Location ID	Halifax Water Identifier
First Lake	FLN-1	OF15068
	FLN-2	OF1755
	FLN-3	OF1754
	FLN-4	OF19611
	FLN-5	OF19571
	FLN-6	OF19551
	FLN-7	OF19631
	FLN-8	OF19511
	FLE-1	OF1753
	FLE-2	OF19512
	FLE-3	OF1751
	FLE-4	OF19491
	FLE-5	OF1747
	FLS-2	OF20071
	FLS-3	OF1701
	FLS-4	OF1592
	FLW-1	OF19552
	FLW-2	OF19553
	FLW-3	OF19592
	FLW-4	OF1596
	FLW-5	OF1599
	FLW-6	OF1598
	FLW-7	OF20031
	FLW-8	OF19988
	Inlet of First Lake	
	Outlet of First Lake	
	Deep Station First Lake (deep)	
	Deep Station First Lake (shallow)	
	Kinsmen Beach	
	Unmarked Outfall	
Second Lake	Inlet of Second Lake	
	Outlet of Second Lake	
	Deep Station Second Lake (deep)	
	Deep Station Second Lake (shallow)	
	Cavalier Gully	
Rocky Lake	Inlet of Rocky Lake	
	Deep Station Rocky Lake (deep)	
	Deep Station Rocky Lake (shallow)	

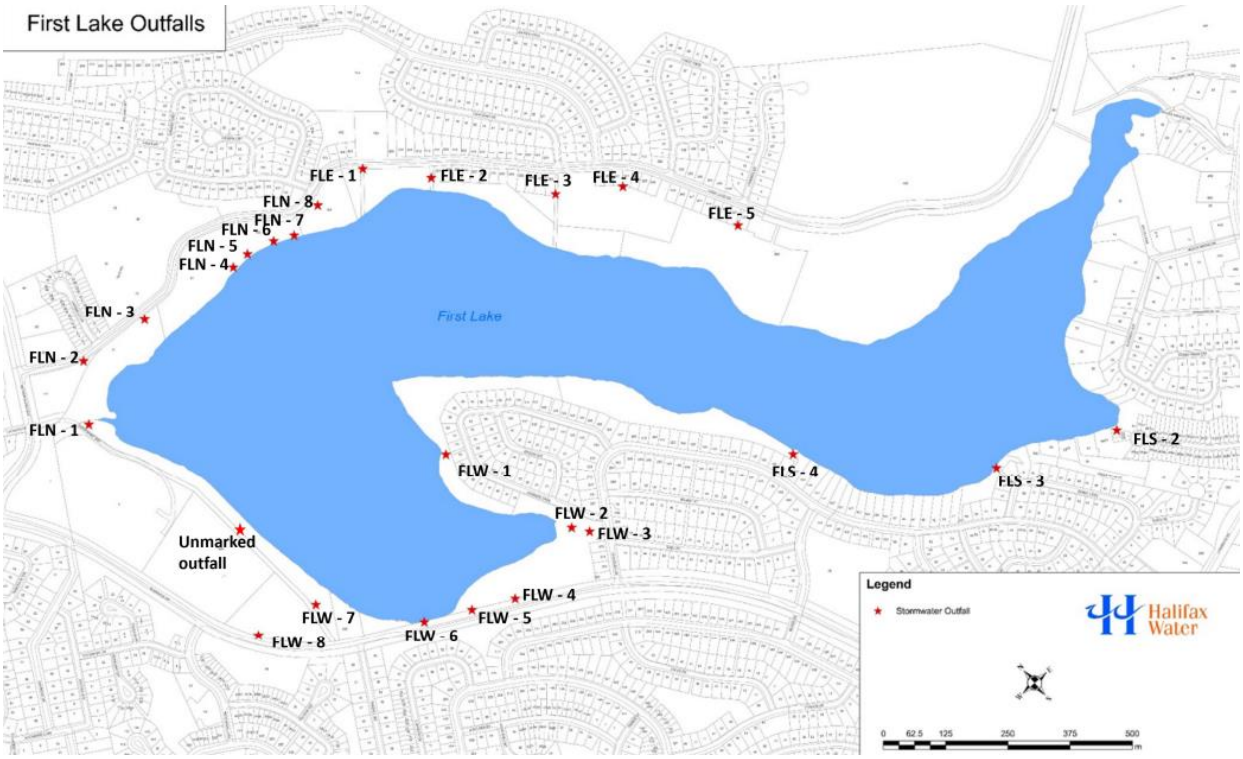

Figure 2: Stormwater Outfalls Located on First Lake

2.2 Sampling Events

Five sampling events took place, between June and September 2022. The sampling captured two rainfall events, in June and September, and three dry events throughout July and August. The September wet weather sampling event was selected to capture the aftermath of Hurricane Fiona. A summary of the field monitoring events is provided in Table 4.

Table 4: Field Monitoring Event Sampling Summary

Date	Field Activities Completed	Conditions
May 13, 2022	Initial Site Reconnaissance	Dry
June 15, 2022	Water Quality, MST, and Flow Monitoring	Rainfall event, before beach season
July 14, 2022	Water Quality and Flow Monitoring	Dry
August 10, 2022	Water Quality and Flow Monitoring	Dry
August 18, 2022	Water Quality and Flow Monitoring	Dry
September 27, 2022	Water Quality, MST, and Flow Monitoring	Rainfall event, after beach season

Two CBCL teams visited each location in one day for each round of sampling. One field team completed shore-based sampling, focusing on the southern portion of First Lake and sites that allowed flow gauging. The second team completed vessel-based sampling, including the mid lake sampling locations at the three lakes deepest points and the northern portion of First Lake.

2.3 Sample Collection

Surface water sampling was conducted in accordance with CBCL's standard operating procedures (SOPs). Special care was taken at the sampling locations not to disturb sediments to avoid water column disturbance and contamination. Sampling was completed by shore-based and vessel-based teams consisting of a minimum of two employees. Locations with no or low flow were noted, and samples were not collected if the water was stagnant. During wet weather sampling events, priority was given to locations that routinely reported no flow conditions in attempt to collect a sample from each location.

A clean, sterilized 1L Nalgene collection bottle was used to take initial samples from the flowing water, ensuring the sample was taken from the middle of the flow depth. Water was then transferred from the collection bottle into a labelled, sterile plastic bottle with Na_2SO_3 preservative provided by the third-party accredited laboratory for *E. coli* analysis. Once all the *E. coli* sample bottles were filled (five per sampling location), the 1L Nalgene collection bottle was filled for MST analysis. Simultaneously, a YSI multimeter probe was used to collect standard water quality parameters in-situ. MST samples were only collected during wet weather events. All sample bottles were stored in a cooler on ice and transported to the accredited laboratory for *E. coli* analysis and the Centre for Water Resources Studies at Dalhousie University for MST analysis. For sampling events that did not require MST analysis, water samples were taken directly with the sterile plastic bottles containing Na_2SO_3 preservative.

In-lake samples were taken from a small vessel at the First Lake deep-lake station, Second Lake deep-lake station and the Rocky Lake deep-lake station. Two samples were taken at each deep-lake location, one at the lake surface and one near the lake bottom using a Van Dorn water sampler. Five *E. coli* samples were taken at each sampling point to complete the geometric mean, as well as YSI sonde probe readings and an MST sample when appropriate. Lake bathymetric profiles were used to determine the location of the deep-lake station in both lakes.

E. coli sampling at Kinsmen Beach was conducted in accordance with the Halifax Beach Water Quality Monitoring Protocol Summer 2017. Samples were collected in a position in the water nearest to the greatest concentration of bathers and where the water was approximately 1 m deep. Open sample bottles were submerged approximately 30 cm below the water surface, with the open end facing downwards, avoiding touching the inside of the bottle or lid to prevent contaminating the water sample with bacteria from human

skin. The labelled bottles were placed in a cooler and transported to the laboratory for *E. coli* analysis.

2.3.1 In-situ sampling

In-situ physical water quality parameters of temperature, pH, dissolved oxygen (DO), total dissolved solids (TDS), and conductivity were measured using a YSI 556 multi meter probe. In-situ samples were measured for the tributaries and outfalls into each lake, and for the surface and deep lake sample locations.

2.3.2 Flow Monitoring

Flow data was gathered during all sampling events where possible for tributaries, stormwater outfalls and lake inlets and outlets to facilitate pollutant loading calculations and assist in modelling. Depending on the outlet type, site accessibility and flow quantity, several methods were used to monitor flow. Outfall locations with no flow were noted during the monitoring program and methods used at locations with flow are outlined in Table 5.

For the final sampling event in September, there was delivery issues with the flow meter as a result of hurricane Fiona. To capture the *E. coli* concentrations during the hurricane aftermath, the float area method was used to approximate flow rates for the tributaries.

Table 5: Summary of Flow Measurement Methods

Method	Locations	Method Summary
Volumetric Flow Method (Bucket Test)	FLN-3, FLN-4, FLE-5, FLW-2, FLW-6, Unmarked Outfall	A bucket of a known volume collects flow from the outlet. The time it takes to fill the bucket is measured and flow is calculated by dividing the volume by time. A minimum of three measurements were taken at each location and the average flow time to fill the bucket was used.
Velocity Meter	Inlet of First Lake, Outlet of First Lake, Outlet of Second Lake FLN-1, FLN-2, FLW-3, FLW-7, FLW-8, FLS-4	A HACH FH950 Velocity flow meter was used to collect velocity measurements. Manual measurements of the flow depth, and channel width were also collected. Using this information, flow was calculated using the continuity equation.
Float-Area Method	Used to approximate flows during September event in locations the current meter was used previously due to equipment delivery issues in the final sampling round	Manual measurements of the flow depth and channel width were collected and used with the time it took for a partially filled float bottle, or ping pong ball, to travel a designated distance of the channel to calculate flow. A roughness coefficient was incorporated to account for differences in surface and average velocities.

2.3.3 *E. coli* Analysis

Accredited third party laboratory *E. coli* analysis for the first four sample events was completed by AGAT Laboratories. Due to laboratory closures at AGAT following Hurricane Fiona, the *E. coli* analysis for the fifth sampling event was completed by Bureau Veritas Laboratories. The method used for analysis was the Membrane Filtration (MF) method, which is described in detail in the Standard Method 9222 H.

Five samples were collected at each location and submitted to the third-party accredited laboratory. Results were provided to CBCL, and the geometric mean for each sample location was calculated from the individual results. With the high variability of *E. coli* concentrations in stormwater systems, there were several instances where the individual *E. coli* results were reported as greater than the detection limit based on the dilutions completed by the third-party laboratory. Work was done with the labs to mitigate the risk during subsequent sampling events. For calculating the geometric mean, the results were reported as the detection limit.

2.3.4 MST Analysis

The Microbial Source Tracking (MST) analysis was performed in the Centre for Water Resources Laboratory at Dalhousie University. All samples were processed within 24 hours of being received. Detection of host specific genetic markers was performed using quantitative polymerase chain reaction (qPCR) methods. Taqman qPCR methods were used to analyze for human and dog-specific markers (Haugland et al. 2010; Caldwell and Levine 2009; Tambalo et al. 2012). The human specific Bacteroidales genetic marker (HF183) was quantified to assess sources of human fecal contamination (Haugland et al. 2010). The dog-specific marker (dogmt) which targets dog mitochondrial DNA was used to assess dog-associated contamination (Caldwell and Levine 2009; Tambalo et al. 2012). The Sybr Green qPCR assay was used to detect an avian-specific marker (GFD) (Green et al. 2012). A second human marker, the crAssphage bacteriophage (viral) genetic marker (Stachler et al. 2017), was also analyzed to provide additional confirmation of human fecal sources.

2.4 Communication

A kick-off meeting took place upon award of the project and monthly progress meetings were held with CBCL, the HRM Project Manager, and Halifax Water to summarize activities completed, note any issues or concerns, present preliminary results and discuss forecasted activities and the schedule for future work. Meeting agendas were circulated prior to each meeting to facilitate efficient use of meeting time.

3 Field Program Results

3.1 Precipitation Data

A graph of daily precipitation for June-September 2022 is provided in Figure 3. Daily precipitation data was taken from the Environment and Climate Change Canada Pockwock Lake Climate Station (Climate ID: 8204453) located approximately 12 km northwest of First Lake. This was the closest station to First Lake with daily data available during the sampling period.

For this study, a qualifying rainfall event is defined as having a minimum 3-hr duration and producing a minimum of 10 mm of rain. Sampling was to occur within 24 hours of rainfall end. The sample event on June 15 occurred within 24-hours of a recorded rainfall event of 14.2 mm. Events on July 14, August 10, and August 18 had minimal rainfall on the preceding day and were classified as dry events. The sampling event on September 27 occurred during a measured rainfall event with the associated rainfall depth of 10.8 mm the day prior to sampling and 24.3 mm on the day of. This September rain event was part of the Hurricane Fiona weather system.

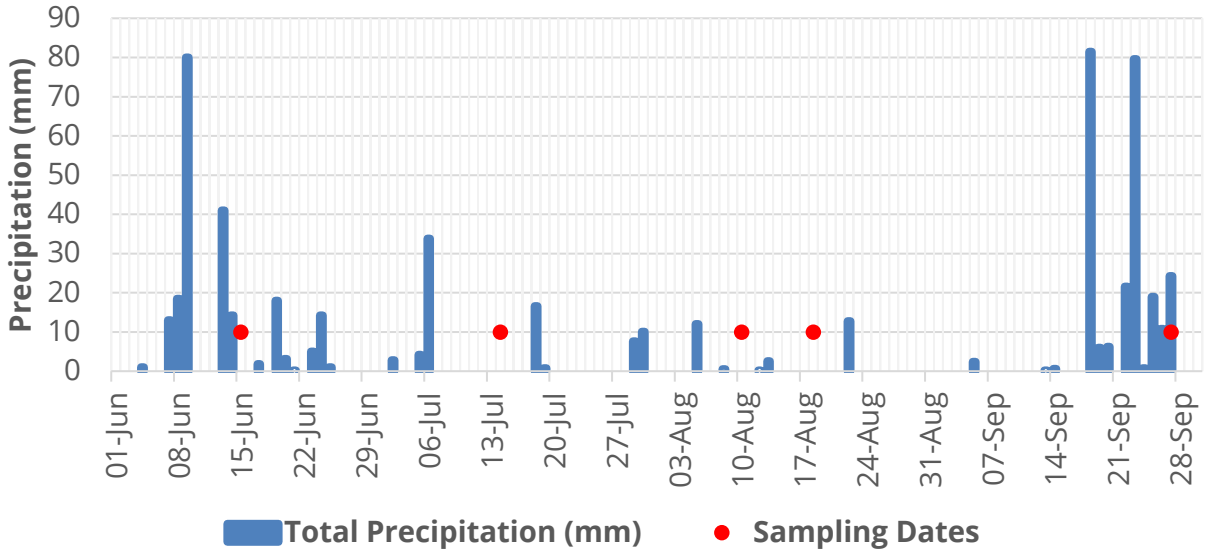

Figure 3: Precipitation Data During Study Period

3.2 Flow Rate Data

Flow rates were monitored during all five sampling events for tributaries, stormwater outfalls and lake inlets and outlets. Flow was monitored using either a velocity flow meter, the volumetric flow method, or the float-area method, depending on the sampling location. During some sampling events, particularly when it was dry weather, there were locations that had no flow so flow monitoring could not be completed. A summary of flow monitoring results is presented below in Table 6.

Table 6: Flow Rate Data by Sample Location

Location ID	Flow Rate (L/s)				
	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22	27-Sep-22
FLN-1	7.466	0.915	0.922	0.439	21.718
FLN-2	6.928	1.951	0.622	0.981	12.266
FLN-3	0.060	0.003	0.004	0.012	0.133
FLN-4	-	-	-	-	0.190
FLN-5	0.600	-	-	-	-
FLN-8	1.000	-	-	-	-
FLE-2	0.110	-	-	-	-
FLE-3	0.090	0.030	-	0.100	-
FLE-5	0.090	-	0.020	-	-
FLW-1	0.240	-	-	-	-
FLW-2	0.140	0.010	0.010	0.030	0.320
FLW-3	0.260	-	-	-	-
FLW-6	0.330	0.020	0.010	0.180	0.670
FLW-7	7.770	0.070	0.010	0.180	0.750
FLW-8	1.030	0.290	0.010	0.390	-
FLS-3	0.290	0.100	0.110	0.130	2.410
FLS-4	0.130	2.744	0.100	0.190	34.956
Inlet of First Lake	57.302	3.201	2.530	0.010	-
Outlet Of First Lake	242.369	55.884	5.354	6.631	397.023
Unmarked Outfall	2.658	4.878	1.427	4.184	5.331

Sampling events in July and August took place during baseflow conditions, with no rainfall within the watershed 48 hours before sampling occurred. June and September sampling events took place during or within 24 hours of reported rainfall. From Table 6, it is shown that water flow in the majority of sampling locations was elevated following a rainfall event. The outlet of First Lake consistently had the greatest flow rate across all sampling locations and events. Furthermore, there were seven stormwater outfalls that did not have flow in either baseflow or wet weather conditions. These locations were FLN-5, FLN-6, FLN-7, FLE-1, FLE-4, FLW-4, and FLW-5.

3.3 Pollution Loading Study – *E. coli*

E. coli samples were collected during all five sampling events at deep lake stations, stormwater outfalls, Kinsmen Beach and nearshore locations (inlet and outlets of the lakes). Five (5) *E. coli* samples were taken at each location, in order to calculate a geometric mean for the sampling event. During some sampling events, particularly when it was dry weather, there were locations that were not flowing so *E. coli* samples could not be collected. A summary of *E. coli* results are presented below in Table 7.

Table 7: *E. coli* Data by Sample Location and Event

Location ID	*E. coli* Results (CFU/100 mL)**				
	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22	27-Sep-22
FLN-1	200*	816	646	2,547	927
FLN-2	200*	14,560	1,103	5,390	25,000*
FLN-3	34	3	270	295	52
FLN-4	-	-	-	862	358
FLN-5	200*	-	-	-	-
FLN-8	200*	9,691	138	515	10,589
FLE-2	193	27	-	-	500
FLE-3	134	14	19	200*	2,500*
FLE-5	192	140	400	257	500*
FLW-1	200*	20,000*	140,414	26,877	25,000*
FLW-2	200*	20,000*	25,338	9,218	1,715
FLW-3	200*	5,377	2,388	20,000*	25,000*
FLW-6	200*	1243	464	7,804	2,442
FLW-7	200*	107	446	2,631	6,871
FLW-8	200*	20,000*	305	3,498	9,177
FLS-2	22	3	9	16	196
FLS-3	200*	13,064	4,873	265	25,000*
FLS-4	200*	20,000*	38,719	39,985	5,864
First Lake (Deep)	1	1	5	28	164
First Lake (Shallow)	18	2	4	3	165
Rocky Lake (Deep)	24	2	3	2	14
Rocky Lake (Shallow)	4	2	2	5	15
Second Lake (Deep)	12	20	1	1	40
Second Lake (Shallow)	9	1	1	1	30
Inlet of First Lake	200*	328	167	400	500*
Outlet Of First Lake	28	13	6	183	121
Inlet of Second Lake	13	11	1	4	66
Outlet of Second Lake	8	17	39	29	87
Inlet of Rocky Lake	-	37	17	5	113

Location ID	*E. coli* Results (CFU/100 mL)**				
	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22	27-Sep-22
Kinsmen Beach	123	79	282	108	500*
Cavalier Gully	248	25	96	2,195	3,106
Unmarked Outfall	1	1	1	3	18

*Reported as above detection limit
**Geometric mean

During the first sampling event, the third party laboratory did not perform dilutions on the samples resulting in several results being reported as above the detection limit of >200 CFU/100mL. Coordination with this sampling event and the laboratory helped to mitigate the risk during subsequent sampling events, however there were still several samples that were reported above detection limits after the dilution. All sampling results were reported to CBCL, and the geometric mean was calculated from the individual results.

When looking at pollutant loads during storm and wet weather events for smaller watersheds, there is the theory of first flush. This concept assumes that the initial volumes of stormwater runoff during a wet weather event contain the highest pollutant levels. Often this is assumed to be the first half inch of runoff. With the scope of this study, the objective was to collect a representative *E. coli* sample within 24 hours of the end of the rain fall event (3 hours with minimum 10mm of precipitation). With the limited rainfall events that occurred during the study period (and majority of rainfall occurring overnight), and some of the catchment areas being small, it is anticipated that some of samples may not have captured the first flush and may not represent the highest concentrations that would have occurred during the wet weather event. To fully capture the first flush of a wet weather event, a sampling program involving multiple samples throughout the event would be required to ensure the first flush was captured, which was outside the scope of this study.

3.3.1 Kinsmen Beach *E. coli* Results

Samples collected at Kinsmen Beach were collected following the HRM beach sampling protocol for comparison to historical data. Kinsmen Beach has been regularly closed in the past due to high bacterial counts in the water exceeding the Canadian Recreational Water Quality (CRWQ) *E. coli* limits of a geometric mean concentration of ≤ 200 CFU/100 mL, and a maximum single sample of ≤ 400 CFU/100 mL for primary contact. Detailed results from the Kinsmen Beach samples are presented in Table 8.

Table 8: *E. coli* Results for Kinsmen Beach

Kinsmen Beach	*E. coli* Results (CFU/100 mL)				
	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22	27-Sep-22
Station A	135	84	292	100	> 500
Station B	92	60	256	90	> 500
Station C	63	60	276	86	> 500
Station D	180	90	> 400	178	> 500
Station E	199	110	308	106	> 500
Geometric Mean	123	79	282	108	> 500

The sampling events on August 10 (during typical beach season) and September 27 (during aftermath of Hurricane Fiona) exceeded the CRWQ geometric mean of < 200 CFU/100 mL. Furthermore, one sample from August 10 and all five samples from September 27 were above the maximum single sample limit of ≤ 400 CFU/100mL.

There is also a stormwater outfall that flows into a tributary stream, FLN-2. This is adjacent to the splashpad near Kinsmen Beach and eventually discharges into First Lake. This location reported *E. coli* concentrations well above both the Canadian Recreational Water Quality Guidelines, and in the magnitude of 10^4 CFU/100 mL, which could be contributing to the high *E. coli* concentrations found at Kinsmen Beach.

3.3.2 Deep Lake *E. coli* Results

Deep lake samples were collected at the surface and at depth in First Lake, Second Lake and Rocky Lake. The location in each lake was approximately the deepest point of the respective lake based on available bathymetric maps.

All deep lake samples (shallow and at depth were below the Canadian Recreational water quality guideline of <200 CFU/100mL, with all samples below 30 CFU/100 mL with one exception. The surface and at depth samples for First Lake during the September wet weather sampling event both had increased *E. coli* concentrations of 165 CFU/100 mL and 164 CFU/100 mL. Overall, minimal bacterial accumulation or loading was observed in any deep lake samples.

3.3.3 Stormwater Outfall Analysis

E. coli concentrations in stormwater can vary greatly depending on many factors and concentrations can vary between 10^2-10^5 CFU/100 mL. It should be noted that it is likely difficult to meet the <200 CFU/100 mL water quality requirement at most stormwater outfalls, and dilution is expected to occur within the lake. Stormwater samples with *E. coli* concentrations in the magnitude of 10^4 or higher can be an indication of influences of domestic wastewater or other *E. coli* sources entering the stormwater system (Jiang et al., 2015). For this study, this threshold of 10^4 CFU/100 mL was used to identify stormwater outfalls with potential *E. coli* pollution that require further investigation.

There were eight (8) outfalls that exceeded this 10^4 CFU/100 mL threshold, at the following locations:

- FLN-2
- FLN-8
- FLW-1
- FLW-2
- FLW-3
- FLW-8
- FLS-3
- FLS-4

Of particular interest were the FLW-2 and FLW-3 locations, as they were adjacent to a domestic wastewater pumping station and regularly had the highest *E. coli* concentrations recorded. For the August 10 sampling event, the FLW-3 location had a barrier set up in front of the culvert. After consultation with Halifax Water staff, it was determined there was a water main break on Chandler Drive, so the barriers were put up in an attempt to limit contamination into the lake. The barrier was removed by the August 18 sampling event. This barrier may have been successful, as the results from August 10 were the lowest reported, but they increased substantially the following week, when the barrier was removed.

3.3.4 *E. coli* Loading Rates

To understand primary lake inputs of *E. coli* into the First Lake system, daily *E. coli* loading rates were calculated. *E. coli* loading rates are based on flow measurements recorded during the sampling events and the *E. coli* geometric mean concentration. Loading rates were calculated for each sampling location where flow and *E. coli* could be monitored. Blank cells indicate there was no flow, and/or no *E. coli* measurements were taken. A summary of *E. coli* loading rates in First Lake are presented below in Table 9.

Table 9: *E. coli* Loading Rates by Sampling Location

Location ID	*E. coli* Loading (CFU/day)				
	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22	27-Sep-22
FLN-1	1.3.E+09	6.4.E+08	5.1.E+08	9.7.E+08	1.7.E+10
FLN-2	1.2.E+09	2.5.E+10	5.9.E+08	4.6.E+09	2.6.E+11
FLN-3	1.8.E+06	7.8.E+03	9.3.E+05	3.1.E+06	6.0.E+06
FLN-4	1.0.E+08	-	-	-	5.9.E+07
FLN-8	1.7.E+08	-	-	-	-
FLE-2	1.8.E+07	-	-	-	-
FLE-3	1.0.E+07	3.6.E+05	-	1.7.E+07	-
FLE-5	1.5.E+07	-	6.9.E+06	-	-
FLW-1	4.1.E+07	-	-	-	-
FLW-2	2.4.E+07	1.7.E+08	2.2.E+08	2.4.E+08	4.7.E+08
FLW-3	4.5.E+07	-	-	-	-
FLW-6	5.7.E+07	2.1.E+07	4.0.E+06	1.2.E+09	1.4.E+09
FLW-7	1.3.E+09	6.5.E+06	3.9.E+06	4.1.E+08	4.5.E+09
FLW-8	1.8.E+08	5.0.E+09	2.6.E+06	1.2.E+09	-
FLS-3	5.0.E+07	1.1.E+09	4.6.E+08	3.0.E+07	5.2.E+10
FLS-4	2.2.E+07	4.7.E+10	3.3.E+09	6.6.E+09	1.8.E+11
Inlet of First Lake	9.9.E+09	9.1.E+08	3.7.E+08	3.5.E+06	-
Outlet of First Lake	5.9.E+09	6.3.E+08	2.8.E+07	1.0.E+09	4.2.E+10
Unmarked Outfall	2.3.E+06	4.2.E+06	1.4.E+06	1.2.E+07	8.3.E+07

E. coli loading rates were found to be the highest at the FLN-2, FLS-3, and FLS-4 stormwater outfall locations, with values reported at 2.6×10^{11}, 5.2×10^{10}, and 1.8×10^{11} CFU/day respectively, during the September wet weather sampling event.

3.4 Microbial Source Tracking Study

Microbial source tracking (MST) analysis was used to distinguish between human and nonhuman fecal source markers in environmental water samples, to determine dominant sources of *E. coli* in First Lake. Specifically, the goal was to differentiate between human, canine and waterfowl sources of fecal contamination in the deep lake stations, stormwater outfalls, Kinsmen Beach and nearshore samples (inlet and outlets of the lakes). The MST method uses Quantitative Polymerase Chain Reaction (qPCR) and a library-independent, genotypic approach for analysis.

MST results are expressed as the number of log copies of a specific gene, in this case human, canine or waterfowl, in a 100 mL sample. Results greater than 1.1 log copies/100 mL are an indication of the presence of fecal contamination, with the prevalent source increasing with the number of gene copies detected. Results less than 1.1 log copies/100 mL are considered a non-detect. A summary of MST results from sampling events on June 15 and September 27 are presented in Table 10, Figure 4 and Figure 5.

Table 10: MST *E. coli* Results

Sample	June 2022					September 27, 2022				
	E. coli	Human HF183	Human CrAssphage	Avian	Dog	*E. coli*	Human HF183	Human CrAssphage	Avian	Dog
	CFU/100 mL	Log copies/100 mL				CFU/100 mL	Log copies/100 mL			
FLN-1	200	4.69	5.57	<1.1	2.61	927	4.45	6.27	2.11	<1.1
FLN-2	200	4.03	4.85	3.59	<1.1	>25000	6.50	4.83	2.39	2.74
FLN-3	34	2.18	3.83	<1.1	1.10	52	<1.1	<2.83	3.07	<1.1
FLN-4	-	6.15	5.62	2.42	2.53	358	3.66	4.09	2.62	<1.1
FLN-5	200	4.63	4.83	<1.1	1.49	-	-	-	-	-
FLN-8	200	3.97	4.05	<1.1	1.44	10589	6.03	7.29	2.51	3.21
FLE-2	193	3.37	3.97	<1.1	1.28	>500	3.06	2.83	3.10	4.70
FLE-3	134	6.85	7.22	2.63	1.65	>2500	3.48	3.03	1.80	3.91
FLE-5	192	7.51	6.04	<1.1	1.23	>500	5.70	4.83	1.26	4.22
FLW-1	200	7.03	6.33	2.80	1.11	>25000	6.68	5.98	2.28	<1.1
FLW-2	200	5.09	4.68	<1.1	2.59	1715	5.92	5.66	2.31	2.47
FLW-3	200	6.29	6.21	<1.1	2.04	>25000	4.72	6.22	2.56	<1.1
FLW-6	200	4.68	5.63	<1.1	1.56	2442	4.36	5.36	2.21	<1.1
FLW-7	200	4.83	6.00	<1.1	1.18	6871	<1.1	7.90	2.64	<1.1
FLW-8	200	4.60	3.97	2.24	1.58	9177	5.36	8.34	2.17	3.45
FLS-2	22	6.39	6.50	3.32	1.20	196	<1.1	<2.83	2.11	<1.1
FLS-3	200	6.74	6.43	<1.1	1.66	>25000	6.79	7.32	2.71	2.70
FLS-4	200	<1.1	<2.83	<1.1	<1.1	5864	6.72	6.25	2.21	<1.1
First Lake (Deep)	1	-	-	-	-	164	<1.1	<2.83	2.04	<1.1
First Lake (Shallow)	18	3.12	4.02	<1.1	<1.1	165	<1.1	<2.83	1.98	<1.1
Rocky Lake (Deep)	24	<1.1	<2.83	2.21	1.91	14	<1.1	<2.83	1.87	<1.1
Rocky Lake (Shallow)	4	<1.1	<2.83	2.10	1.25	15.3	<1.1	<2.83	1.38	<1.1
Second Lake (Deep)	12	<1.1	<2.83	<1.1	1.76	40	<1.1	<2.83	1.81	<1.1
Second Lake (Shallow)	9	-	-	-	-	30	3.75	3.83	1.81	<1.1
Inlet of First Lake	200	<1.1	<2.83	<1.1	<1.1	>500	4.21	6.17	1.65	<1.1
Outlet Of First Lake	28	5.66	6.14	6.67	2.45	121	3.80	4.53	2.19	<1.1
Inlet of Second Lake	13	2.89	3.99	3.31	<1.1	66	<1.1	<2.83	2.49	<1.1
Outlet of Second Lake	8	2.05	2.95	5.79	1.36	87	<1.1	<2.83	2.38	<1.1
Inlet of Rocky Lake	-	<1.1	<2.83	2.10	2.25	113	<1.1	4.45	2.75	<1.1
Kinsmen Beach	123	3.69	4.25	<1.1	1.53	>500	5.20	5.68	2.78	3.32
Cavalier Gully	248	3.63	4.21	<1.1	2.90	3106	2.70	4.10	2.67	3.38
Unmarked Outfall	1	<1.1	<2.83	<1.1	<1.1	18	<1.1	<2.83	4.06	<1.1

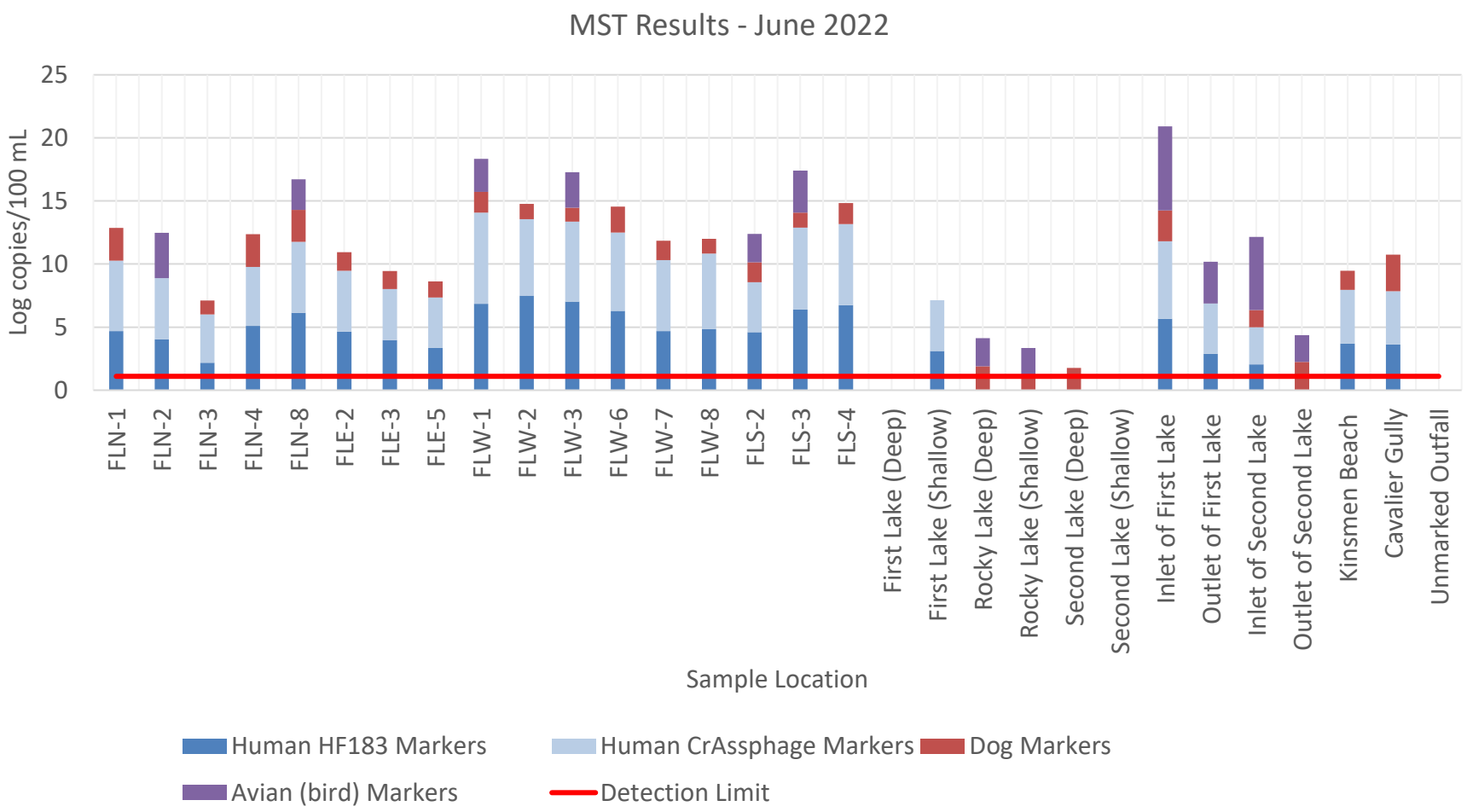

Figure 4: MST Results - June 2022

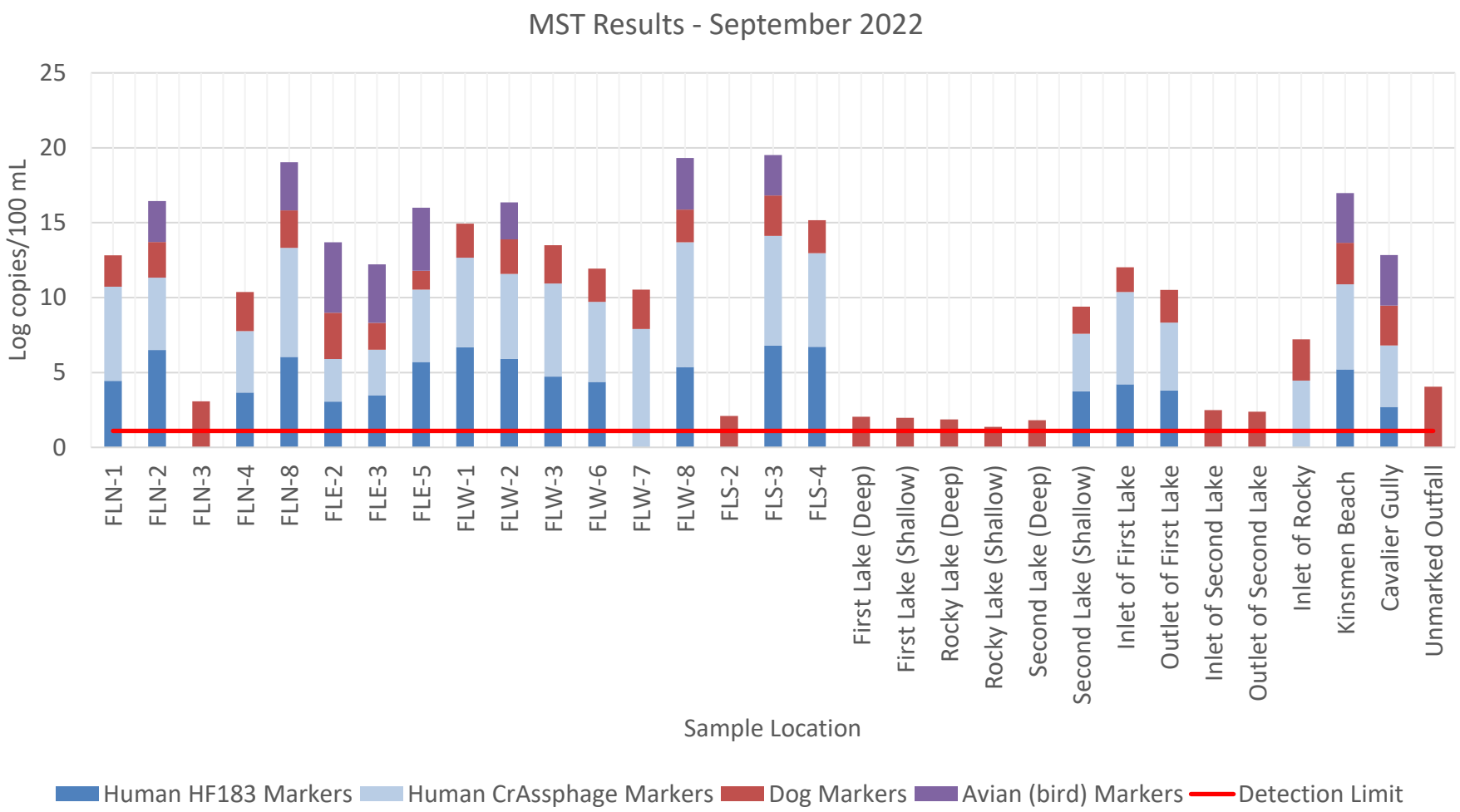

Figure 5: MST Results - September 2022

MST results indicated that human fecal source markers were detected in 77% of samples from the June 15, 2022 sampling event, and in 65% of samples from the September 27, 2022 sampling event. Both of these sampling events were during wet weather conditions, and the discrepancy between the two may be attributed to missing the first flush. The June 15 sampling event had heavy rainfall during a shorter period, and sampling occurred immediately following rainfall end. The September 27 sampling event, however, had rainfall spread out over several days, and sampling occurred 3 days after the heaviest rainfall. The percent of all samples from each MST sampling event that had a detection of human, dog, and/or avian fecal source markers are presented in Table 11. Table 1

Table 11: MST % Detection of Human, Dog or Avian Markers

	MST % Detection in Samples	
	15-Jun-22	27-Sept-22
Human HF183	77	61
Human CrAssphage	77	68
Dog	80	100
Avian	40	32

MST results from Kinsmen beach sampling indicate the dominant fecal source marker was human at this location, with values reported between 3.69 – 5.68 log gene copies/100 mL. The inlet to First Lake also saw a high detection of human markers, which is adjacent to Kinsmen Beach, with values reported between 4.21 – 6.17 log gene copies/100 mL. There were also positive detections of dog and avian fecal source markers observed at Kinsmen Beach.

MST results for deep lake monitoring stations had detection of fecal source markers, but were the lowest values observed compared to other sampling locations. The outfall locations that had the lowest detection of fecal source markers were FLE-2 and FLN-3. For the June 15 sampling event, human detection was only observed in the First Lake shallow sample. Furthermore, dog and avian fecal source markers were observed at both the shallow and deep lake locations at Rocky Lake. As for September 27 sampling event, human detection was again only observed in one sample, however this time was at the Second Lake shallow sampling location. There were also no avian markers in the deep lake samples from September 27, however, dog markers were detected in all deep lake samples. Finally, when comparing the surface sample and the deep sample for each of the deep lake monitoring stations, the MST results were the same for First Lake and Rocky Lake. However, Second Lake had human detection in the surface sample, but no human detection in the deep lake sample during the September sampling event.

For the stormwater outfalls, all sampling locations had detection of human markers in at least one of the samples. Seven (7) locations had a high number of human gene copies detected, which were as follows: FLN-8, FLW-1, FLW-2, FLW-3, FLW-7, FLW-8 and FLS-3, with values of 7.29, 7.22, 7.51, 7.03, 7.90, 8.34 and 7.32 log copies/100 mL, respectively. These

are highlighted in Figure 6. All sampling locations had detection of dog markers in at least one of the samples, but lower values were reported compared to human markers.

As previously mentioned, there were either (8) outfalls that exceeded the 10^4 CFU/100 mL threshold for *E. coli* concentrations, indicating possible influences of domestic wastewater or other *E. coli* sources entering the stormwater system. When comparing these locations to the MST results, six (6) of these locations had a high number of human gene copies detected. These locations include FLN-8, FLW-1, FLW-2, FLW-3, FLW-8, FLS-3 and are shown in Figure 7.

When locations are identified as high in *E. coli* concentration and have human as the dominant fecal source markers, there is evidence to suggest domestic wastewater is present in the stormwater system (Staley et al., 2016). Therefore, it is recommended that these locations be the focus areas for repairs and remediation in the future, due to their increased risk to human health.

3.5 In-situ Water Monitoring

In-situ water quality monitoring was performed during all five sampling events at deep lake stations, stormwater outfalls, Kinsmen Beach and nearshore samples (inlet and outlets of the lakes). The following in-situ water quality parameters were monitored:

- pH.
- Temperature (°C).
- Dissolved oxygen (mg/L).
- Specific conductance (µS/cm).
- Total dissolved solids (mg/L).

Detailed in-situ water quality results for each sample location are presented in Appendix B.

Average E. Coli Counts (CFU/100mL)

- 0 - 1027
- 1028 - 4227
- 4228 - 11294
- 11295 - 20954
- 20955 - 42498

HRM Pollution Source Control Study - First Lake, Lower Sackville

Figure 6 - outfalls with elevated human markers

0 125 250 500 m

Coordinate System: NAD 1983 (CSRS) v6 MTM Nova Scotia zone 5
Units: Meter

Average E. Coli Counts (CFU/100mL)

- 0 - 1027
- 1028 - 4227
- 4228 - 11294
- 11295 - 20954
- 20955 - 42498

HRM Pollution Source Control Study - First Lake, Lower Sackville

Figure 7 - outfalls with elevated human markers and *E. coli* counts > 10^4 CFU/100ml

0 125 250 500 m

Coordinate System: NAD 1983 (CSRS) v6 MTM Nova Scotia zone 5
Units: Meter

4 Watershed Modelling

4.1 Approach

Field data collected during the sampling program was key in identifying *E. coli* concentrations associated with specific stormwater outfalls and with identifying the potential microbial sources. The data collected provides a snapshot of the loadings at the specific time of sampling, however it provides limited information of the spatial distribution of sources and pollutant loadings that may be observed during a precipitation event. To compliment the field data collected through the sampling program, a hydrologic watershed model was developed for First Lake to model estimated pollutant loadings from surface runoff. The model was used to estimate the total loading rates to First Lake on an event based and annual loading basis.

4.2 Hydrologic Model

CBCL developed a computer model of the site using PCSWMM, an advanced modelling software based on the EPA SWMM model, which is a Storm Water Management Model developed by the United States Environmental Protection Agency (USEPA). SWMM is a hydrologic and one-dimensional hydraulic model that is used to study semi urban drainage systems and is able to simulate hydrologic processes such as runoff, infiltration, snowmelt, evapotranspiration and low impact development measures. It is also applied for performing unsteady hydraulic flow calculations to simulate water backup, pooling, and detention ponds.

4.2.1 Watershed Land Use

The watershed that drains to the First Lake includes 285.48 hectares in total which is covered by various land uses including residential, commercial, roads, and undeveloped areas as shown in Figure 8.

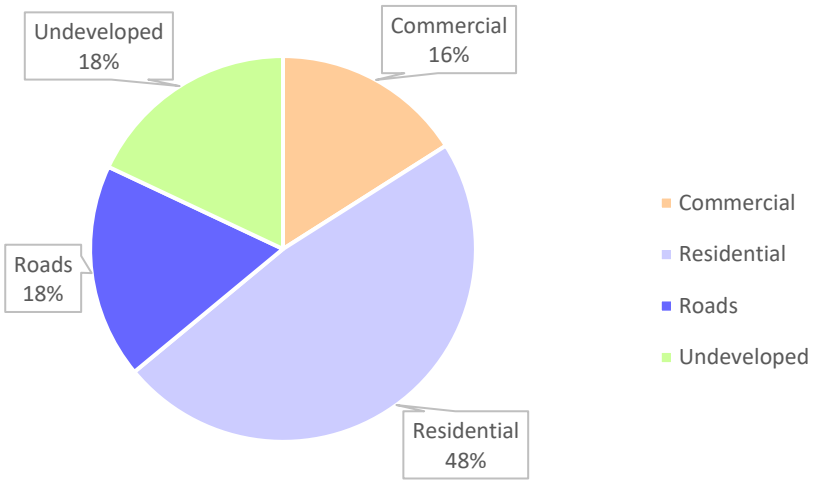

Figure 8: Land Use Breakdown of the Watershed Contributing to the First Lake

4.2.2 PCSWMM Model Inputs

Figure 9 illustrates the watershed area delineated with PCSWMM that drains towards the First Lake. This area was delineated using existing LIDAR information available from the province of Nova Scotia (GeoNOVA, 2019). The hydrologic characteristics of the watershed such as area, percent slope, soil conditions, surface roughness and percentage of impervious cover were obtained using LIDAR data, aerial photography, satellite imagery, and the Agriculture Canada Soil Survey of Halifax County Nova Scotia.

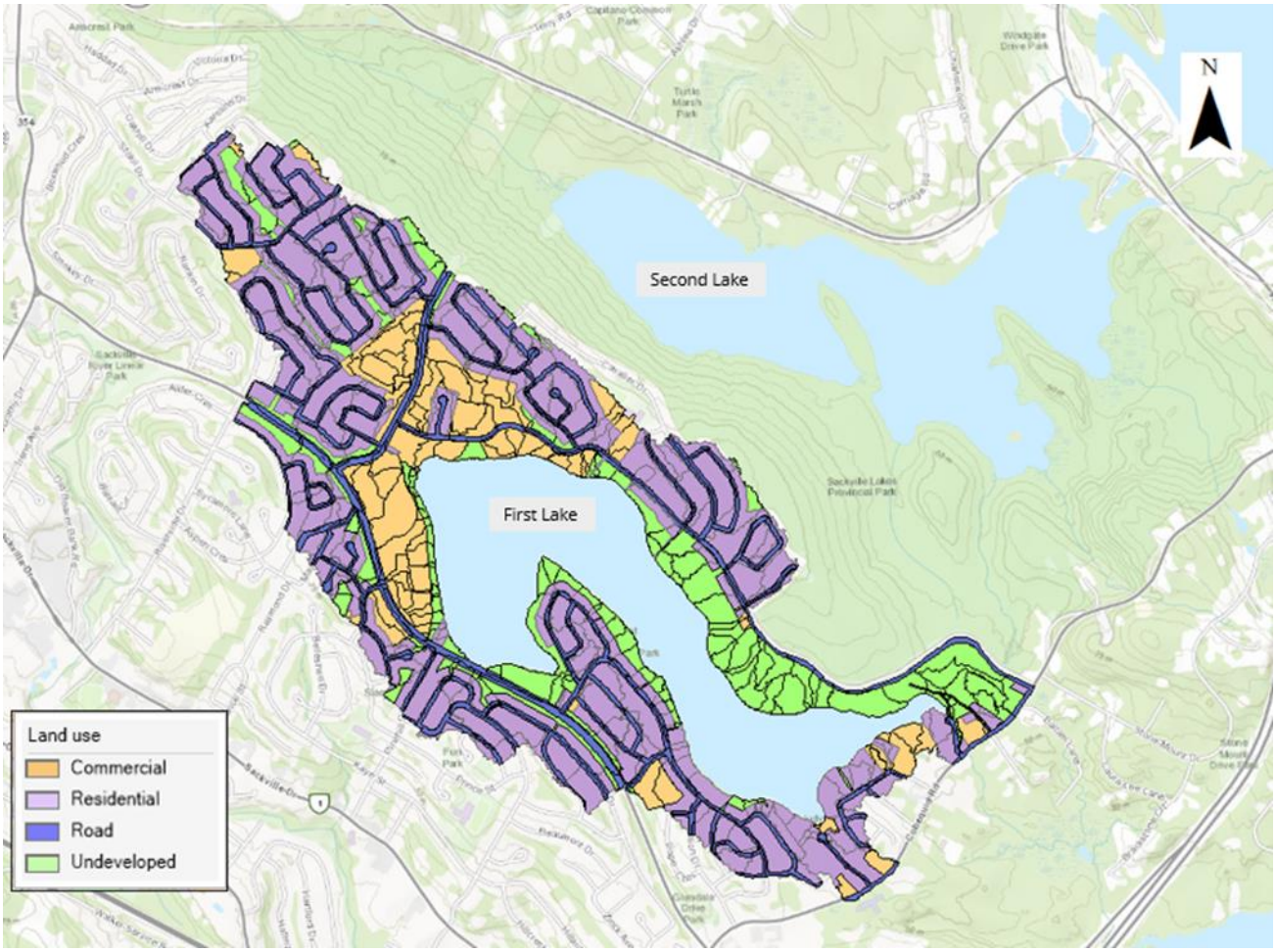

Figure 9: Contributing Watershed to First Lake Based on Land Use

The hydrologic characteristics of the First Lake watershed are summarized as follows:

- **Watershed Area:** The watershed draining to the First Lake covers an area of approximately 285.48 hectares. The watershed was first divided into subcatchments of 1 hectare. However, to demonstrate the variety of land cover throughout the watershed, various adjustments were made to the subcatchments resulting in subcatchments ranged from 0.003 to 4.5 hectares.
- **Slope:** The average overland slope varies between 0.3% and 10% with mainly higher slopes along the northern shoreline.
- **Land Cover:** According to the aerial photography, residential areas cover the majority of the contributing watershed (almost 48%), followed by roads, undeveloped regions, and commercial areas (18%, 18%, and 16%, respectively). Residential areas were considered to consist of 30% of impervious surface (concrete/pavement) with commercial areas estimated to consist of 80% impervious surfaces. The undeveloped areas are mainly grass or light underbrush. Table 12 lists the Manning coefficients assigned to the various types of land covers identified across the watershed.

- **Soil Type:** According to the Nova Scotia Detailed Soil Survey, the predominant soil type in the area is Sandy-Clay-Loam. The Sandy-Loam soil type was observed in a few subcatchments to the east side of the lake. The infiltration parameters introduced to the model for these soil types are shown in Table 13. (Rawls, W.J. et al., (1983)).

Table 12: Manning Coefficient Assigned to Land Cover

Land Cover	Manning Coefficient
Grass	0.15
Light Underbrush	0.40
Concrete/Pavement	0.013

Table 13: Infiltration Properties (from Rawls, W.K et al 1983)

Soil Class	Suction Head (mm)	Conductivity (mm/hr)	Initial Deficit (frac.)
Sandy-Clay-Loam	219.96	1.52	0.02
Sandy-Loam	109.98	10.92	0.02

Using the hydrologic characteristics of the watershed described, the PCSWMM model was used to calculate the surface runoff rates for each land use. The surface runoff rates were then used in the *E. coli* event mean concentration and annual loading calculations.

4.3 Event Mean Concentration Analysis

A rainfall event-based model was used to estimate the overall *E. coli* loading to First Lake due to surface runoff during a precipitation event for the watershed. This method requires the calculation of surface runoff depth for a representative rain event from the hydrologic model along with identifying literature-based event mean concentration (EMC) values for *E. coli* based on type of land use. The *E. coli* load that enters the waterbody for a specific rainfall event due to surface runoff is then calculated as the product of the runoff depth, the land use area, and the EMC, as shown below.

$$\boldsymbol{P_{event} = \sum R_d \times A_{LU} \times EMC_{LU}}$$

P_{event}: Total pollutant load on an event basis (Kg or CFU)
R_d: Runoff depth (mm)
A_{LU}: Area associated with specific land use (m^2)
EMC_{LU}: Pollutant event mean concentration for a specific land use (mg/L or CFU/100 mL)

4.3.1 Runoff Depth Determination

Runoff depth was estimated for various land uses across the watershed using the hydrologic model generated with PCSWMM. A 1 in 2-year rainfall event with a 24-hour duration was selected as a conservative approximation of a frequent event for this analysis.

The rainfall hyetograph of the selected rainfall event for the analysis was derived from the Environment and Climate Change Canada (ECCC)'s rainfall intensity-duration-frequency (IDF) data for the Shearwater RCS station in Nova Scotia. The hyetograph consists of a 24-hour duration event with 5-minute interval storm for the 1 in 2-year return period, based on the Chicago storm distribution. Figure 10 depicts the calculated time series for the 1 in 2-year event.

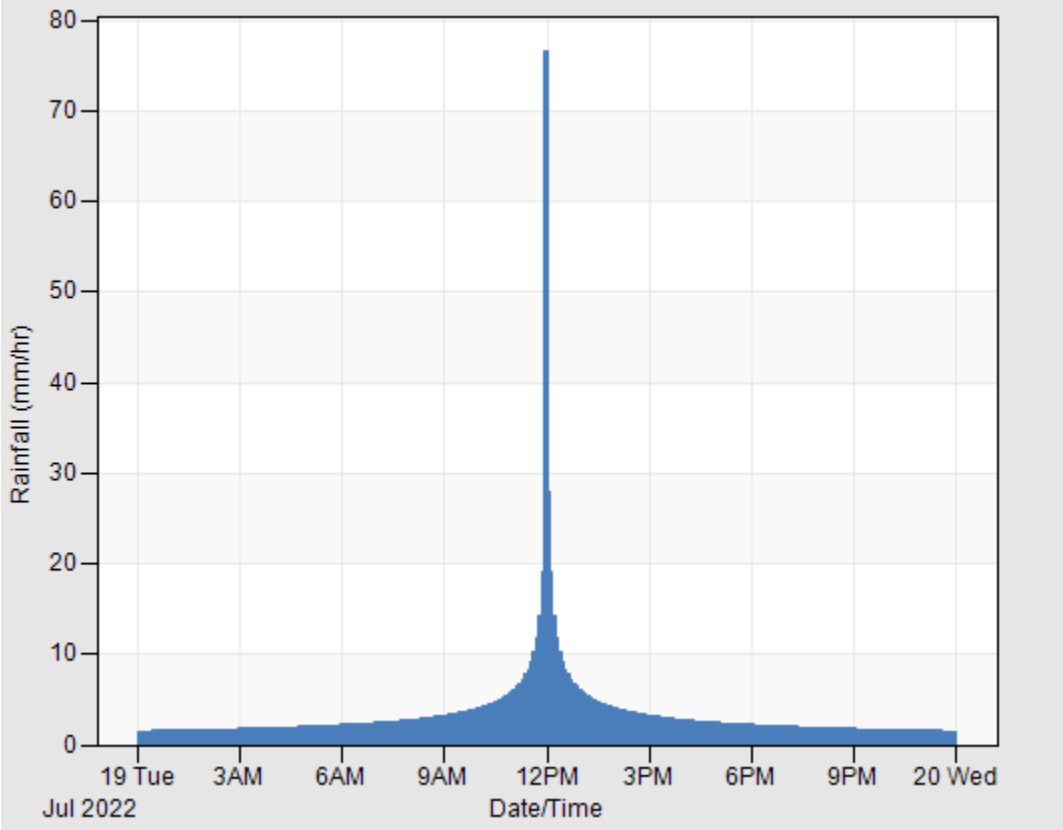

Figure 10: Chicago Rainfall Distribution for Shearwater RCS Station based on the 1 in 2-year IDF curves (dates shown represent simulation dates)

Using the PSCWWM model and inputs described in section 4.2.2, surface runoff depths were calculated based on the 1 in 2-year rainfall event. Table 14 summarizes the calculated runoff depths for different land uses across the watershed.

Table 14: Summary of Land Use Associated Parameters for Study Area

Land Use	Area (ha)	Runoff Depth (mm)
Commercial	45.47	71.93
Residential	136.81	50.46
Roads	51.89	80.62
Undeveloped	51.31	38.78
Total	285.48	-

4.3.2 Total Event Mean Concentration Calculation

Event mean concentrations (EMCs) represents the average pollutant concentration for a given rainfall event and is calculated as the total mass of a pollutant divided by the total runoff volume of the rain event. As the pollutant concentration can vary throughout the rainfall event, multiple samples may be collected throughout a rainfall event at set time intervals to determine the average loading concentration. With the difficulty in sampling and monitoring stormwater runoff for different land uses, stormwater modelling often relies on established EMC for different land uses found in industry literature. As the *E. coli* sampling completed throughout the project was discrete samples during several sampling events rather than continuous sampling throughout a single rainfall event, EMCs available through literature will be used.

As fecal coliforms have historically been used as standard indicator for stormwater bacteria sampling, a large portion of industry literature is derived from fecal coliform data in stormwater. As a result, there is limited available EMC data for *E. coli* by land use. To address this gap, fecal coliform event mean concentration (FC EMC) associated with various land uses in literature were used as a reference for *E. coli* concentrations for this study. Table 15 presents values determined through literature review and used in this calculation.

Table 15: Fecal Coliform Event Mean Concentrations Based on Land Use

Land use	Fecal Coliform Event Mean Concentration (CFU/100 mL)
Commercial	4,500[1]
Residential (Low to High-Density)	7,750[1]
Roads	1,400[2]
Undeveloped	10,365[3]

[1] Theriault, A. Duchesne, S., 2015; [2] CH2M HILL, 1993; [3] Burnhart *et al*. nd

Using the runoff depths per land use determined through the hydraulic model, along with the overall area and EMC for each land use, the total fecal coliform (in lieu of *E. coli*) loading entering First Lake during a 1 in 2-year rain event was calculated. The results are summarized in Table 16.

Table 16: Fecal Coliform Loading Entering First lake via Different Land Uses During a 1 in 2-Year Rainfall Event

Land Use	Total *E. coli* Load (CFU)
Commercial	1.47×10^{12}
Residential (Low to High-Density)	5.35×10^{12}
Roads	0.59×10^{12}
Undeveloped	1.96×10^{12}
Total	9.36×10^{12}

The results indicate that, even though EMC associated with undeveloped areas are highest shown in Table 15, residential areas generate the largest concentration of fecal coliform per event due to the higher percentage of land in the watershed. This is illustrated in Table 17.

Table 17: Percentage of Total Fecal Coliform Loading in First Lake by Land Use during 1 in 2-Year Rain Event

Land Use	Land Use Percentage	Fecal Coliform Loading Percentage
Commercial	16%	16%
Residential (Low to High-Density)	48%	57%
Roads	18%	6%
Undeveloped	18%	21%

4.4 Annual Concentration Analysis

To determine the annual *E. coli* loading to the First lake from each land use, an annual loading model was used. For the annual model, the total pollutant loads that discharge to the waterbody on an annual basis is calculated as the product of the average annual rainfall in the study area, land use associated EMC values, area associated with each land use, and runoff coefficient. Similar to the rainfall event-based model, the fecal coliform EMC values from literature were used for this calculation.

$$L_{Annual} = \sum EMC_{LU} \times A_{LU} \times R_{ave} \times RC_{LU}$$

L_{Annual}: Total pollutant load on an annual basis (kg/year or CFU/year)
EMC_{LU}: Areal pollutant loading rate for a specific land use (g/m2/year or CFU/100mL/ha/year)
A_{LU}: Area associated with a specific land use (m^2)
R_{ave}: Average annual rainfall (mm)
RC_{LU}: Runoff coefficient associated to land use

4.4.1 Annual Concentration Model Inputs

An average annual rainfall depth of 1,322.5mm for climate normal conditions for the area was derived from the ECCC climate station data for Westphal (Climate ID: 8206250). This average was based on 30 years of rainfall data from 1981 to 2010. This station was the closest station to the study area in terms of location and elevation with available climate normal data.

Runoff coefficient associated to each type of land use were obtained from literature as shown in Table 18. The areas associated with each land type are presented in Table 14. Fecal coliform EMCs by land use are presented in Table 15.

Table 18: Runoff Coefficient for Different Land-Uses (Brown, S.A. et al., 2009)

Land Use	Runoff Coefficient
Commercial	0.95
Residential (Low to High-Density)	0.6
Roads	0.95
Undeveloped	0.25

4.4.2 Annual Concentration Calculation

Using the inputs outlined in Section 4.4.1 and the hydrologic model, annual fecal coliform loading rates into First lake were calculated. The results are summarized in Table 19. Based on the results, residential areas are by far the major source of *E. coli* loading to the First Lake on an annual basis, which is followed by commercial, undeveloped and roadways, respectively.

Table 19: Annual *E. coli* Loading to First Lake from each type of land use

Land-Use	Total *E. coli* Load (CFU)
Commercial	25.7×10^{12}
Residential	84.13×10^{12}
Roads	9.12×10^{12}
Undeveloped	17.58×10^{12}
Total	136.55×10^{12}

5 Recommendations to Mitigate Bacterial Loading

5.1 Discussion on Sources of Contaminants

When looking at potential sources *E. coli* loadings, sources can be point sources or non-point sources. Point sources would be direct bacteria sources such as discharges from wastewater treatment plants. With the sanitary wastewater collected and treated at the Mill Cove Wastewater Treatment Plant, point sources into First Lake should be non-existent. Non-point sources would include groundwater infiltration, sanitary sewer cross connections, leaking/damaged pipes, or illegal connections to the storm water systems. Non-point sources can play a significant role in the overall loading into a receiving body of water. Table 20, adopted from the International Stormwater BMP Database, outlines potential point sources for fecal indicator bacteria and pathogens, including *E. coli*. While not all would apply, it shows the wide range of potential sources to consider.

Table 20: Potential Sources of Fecal Indicator Bacteria and Pathogens (adopted from International Stormwater BMP Database: 2020 Summary Statistics)

General Category	Source/Activity
Municipal Sanitary Infrastructure (piped)	Sanitary sewer overflows (SSOs)
	Leaky sewer pipes (Exfiltration)
	Illicit sanitary connections to storm sewers
	WWTPs (if inadequate treatment or upsets)
Other Human Sanitary Sources (some also attract urban wildlife)	Leaky or failing septic systems (may include excessive density of systems in one area or temporary overuse of the systems)
	Homeless encampments or other human outdoor sources
	Porta-potties
	Dumpsters (e.g., diapers, pet waste, urban wildlife)
	Swimmers/bathers, boaters, trail users
	RVs (mobile) and other illegal dumping
	Trash cans
	Garbage Trucks
Domestic Pets	Dogs, cats, etc.
Urban Wildlife (naturally occurring and human attracted)	Rodents/vectors (rats, raccoons, squirrels)
	Birds (gull, geese, ducks, pigeons, swallows, etc.)
	Open space (coyotes, foxes, beavers, feral cats)
Other Urban Sources	Landfills
	Food processing facilities
	Outdoor dining
	Restaurant grease bins
	Green waste, compost/mulch
	Animal related facilities (e.g., bed boarding, off-leash parks)
Urban non-stormwater discharges	Power washing
	Excessive irrigation/overspray
	Car washing
	Pools/hot tubs
	Reclaimed water/greywater (if not properly managed)
Stormwater Infrastructure	Illegal dumping
	Illicit sanitary connections
	Leaky sewer pipes
	Biofilms/regrowth
	Decaying plant matter
Natural Open Space/Forested Areas	Wildlife populations
	Grazing
	Natural area parks, off-leash areas
Other Naturalized Sources	Decaying plants/algae, sand, soil

With the MST results from the study, human markers were found in all samples collected from stormwater outfalls around First Lake. With comparison to the deep lake samples, it is evident that there are sanitary sources reaching the stormwater outfalls and near shore samples collected.

Elevated *E. coli* concentrations were also detected during periods of dry weather flow (during July and August). There are two main sources of dry-weather flows in storm sewers, groundwater infiltration and sanitary sewer cross-connections. With stormwater outfalls having flow during dry weather conditions that also had elevated *E. coli* results, it is surmised that those outfalls may be under the influence of sanitary cross connection. It should be noted that the outfalls FLW-3, FLW-8 and FLS-3 only had high results for one of the three dry weather events, while FLW-1, FLW-2 and FLS-4 had multiple dry weather samples exceed the 10,000 CFU/100mL threshold.

The sanitary and stormwater collection systems around First Lake are separate, so it is anticipated that there should not be any combined sewer overflows that would be directed to First Lake. This would lead to unintended cross connections, illegal connections or damaged/leaking infrastructure as possible sources contributing to the sanitary loadings that should be investigated further.

Accumulation of sediment, silt and organic matter in stormwater infrastructure can harbour bacteria and release it during stormwater events. Nutrient rich standing water in stormwater infrastructure can also lead to growth of bacteria in between storm events that could later be flushed out into the stormwater system and receiving waters. This is another possibility of how *E. coli* could be getting into the system. It is recommended that stormwater infrastructure cleaning be performed to mitigate this possible source of contamination to the system.

5.2 Best Practices/Methods for Reducing Stormwater Contamination

For stormwater best management practices (BMPs), the top priority is to reduce or eliminate sources of domestic wastewater from entering the stormwater collection system as it is easier to prevent the sources entering the system than to try to reduce contaminants through treatment once it has entered the stormwater system. As mentioned, it is likely that the domestic wastewater is entering the stormwater system through system cross connections with the sanitary sewers, or exfiltration into the stormwater system through damaged or leaking sanitary sewers.

Figure 11 shows a simplified approach of steps to take for reducing *E. coli* loading in a wastewater system. As a starting point, more in depth investigation for stormwater outfalls should be completed to pin-point the potential sources in areas with elevated *E. coli* results.

This could include targeted *E. coli* (or other fecal indicator bacteria) sampling through the stormwater catchment area of outfalls with exceedances, dye testing, smoke testing or CCTV inspection to identify sources. Once identified, steps should be completed to eliminate the cross connection or to repair damaged or leaking infrastructure. Stormwater outfalls that had elevated *E. coli* concentrations detected during dry-weather conditions should be the focus to start, as it could indicate the outfall is under the influence of a domestic wastewater source or groundwater that has come in contact with a domestic wastewater source. Throughout the investigations, best practices for stormwater systems should be completed, such as maintaining infrastructure, cleaning catch basins, etc.

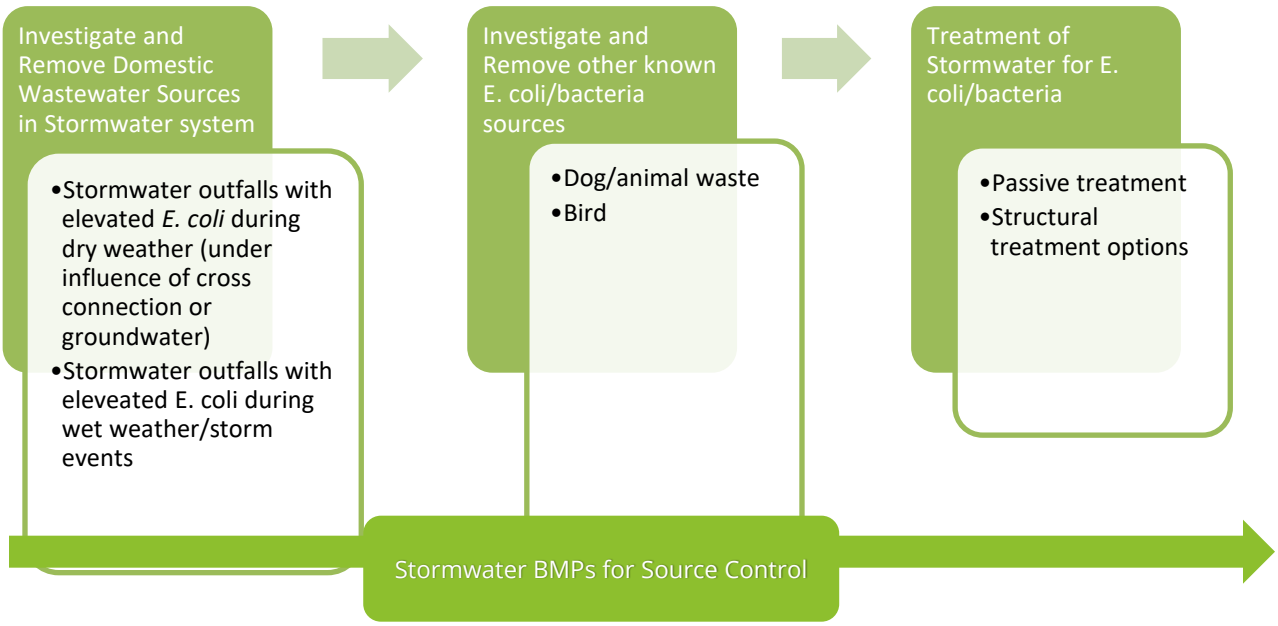

Figure 11: Approach to Reducing *E. coli* in Stormwater Collection System

From the sampling results, FLW-1, FLW-2, FLW-3, FLS4, FLW-8 and FLN-1 were identified as stormwater outfalls that had elevated *E. coli* results and could be candidates for further investigation into potential cross connections or wastewater sources. Figure 12 highlights the potential catchment areas that could be investigated through desktop assessment of existing infrastructure, additional *E. coli* testing or smoke testing.

Average E. Coli Counts (CFU/100mL)

- 0 - 1027
- 1028 - 4227
- 4228 - 11294
- 11295 - 20954
- 20955 - 42498
- Outfall dry during sampling
- Areas of Investigation

HRM Pollution Source Control Study - First Lake, Lower Sackville

Figure 12 - First Lake stormwater outfalls for further investigation

0 125 250 500 m

Coordinate System: NAD 1983 (CSRS) v6 MTM Nova Scotia zone 5
Units: Meter

If *E. coli* exceedances are still persistent following the investigation/remediation of sources of domestic wastewater entering the stormwater system, work can be shifted to consider other sources of *E. coli* including sources from dog/bird and wildlife. This can be difficult as it is dealing with wildlife but could include public education on the importance of proper pet waste disposal, and deterrence methods for birds to prevent them from landing in and around Kinsmen Beach, including docks that are near the beach.

If, after exhausting options for reducing potential *E. coli* sources from entering the stormwater system, there are still persistent *E. coli* or FIB present, treatment within the stormwater system may be required. With the variability of *E. coli*, especially during wet weather or storm events, consistently meeting the recreational quality guidelines is not typically realistic. Options can vary from passive stormwater structures such as grass swales to retention ponds or wetlands to more active treatment such as filters or disinfection. From industry reviews, performance monitoring of stormwater treatment for *E. coli* treatment is limited and the studies completed to date have shown that efforts to reduce sources from entering the stormwater system or options to reduce overall stormwater volumes should be implemented first. Figure 13 provides a summary of some options that can be considered as a utility works through identifying and reducing *E. coli* loadings into the stormwater system.

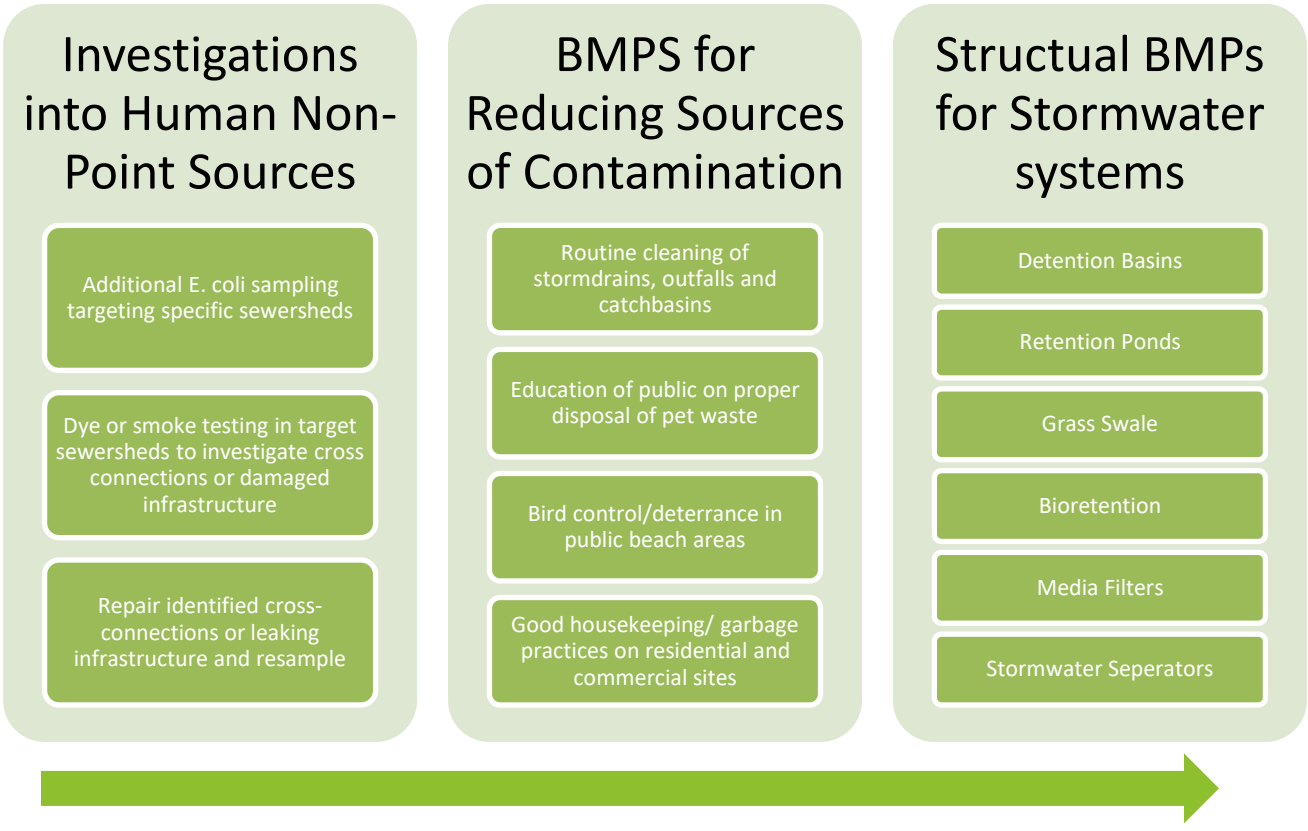

Figure 13: Summary of Options for Dealing with *E. coli* in Stormwater Systems

5.3 Recommendations

Throughout the study, elevated *E. coli* concentrations exceeding the recreational guideline were measured at many stormwater outfalls in First Lake along with Kinsmen Beach. Some stormwater outfalls had exceedances several magnitudes higher than the recreational guideline, with *E. coli* results similar to those expected in dilute domestic wastewater. MST sampling was completed to identify the potential sources of *E. coli* as human, dog or avian sources. All stormwater outfalls sampled had detectable levels of the human markers, indicating potential domestic wastewater contamination.

The following are recommendations for reducing *E. coli* loading into First Lake, in order of priority:

- Investigation of the catchment areas around the stormwater outfalls FLN-1, FLW-8, FLW-1, FLW-2 and FLS-4 for potential sanitary cross connections or leaking pipework. This could be completed through a combination of additional *E. coli* sampling, dye testing, smoke testing, cleaning or CCTV. The objective would be to identify and eliminate the sources of contamination.
- All three lakes (First, Second and Rocky), had dog markers detected. With the popular walking trails along the lake, the dog park at Eddie LeBlanc ball fields and the residential backyards along First Lake, public education on the importance of proper disposal of pet waste may aid in reduction of loadings into the lake.
- Avian markers were detected at Kinsmen Beach and the presences of birds in the area was noted during all 5 sampling events. It is difficult to implement bird management controls, especially in public areas like the beach, but there are some deterrence and dispersion measures that could be investigated at a feasibility level once the human sources of *E. coli* have been investigated.

If a similar study was to be carried forward on First Lake in the future, recommendations to the scope of work could be as followed:

- Some of the samples may not have captured the first flush and may not represent the highest concentrations of *E. coli* that would have occurred during a wet weather sampling event. To fully capture the first flush of a wet weather event, a sampling program involving multiple samples throughout the event would be required.
- If *E. coli* exceedances are still persistent following the investigation/remediation of sources of domestic wastewater entering the stormwater system (human sources), it is recommended that work be shifted to consider other sources of *E. coli* including sources from dog/bird and other wildlife, including deer.
- *E. coli* concentrations were variable throughout the sampling program, particularly due to time of year and weather conditions, causing dilution factors to be occasionally missed by the accredited laboratory. It is recommended that a good relationship be established with the laboratory, to ensure dilutions are performed adequately so a quantitative result can be achieved for each sample.

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APPENDIX A

Background Reference Review

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Background Document Review

Assessing Sources of fecal contamination and pathogen presence at four freshwater beaches in in the Halifax Regional Municipality (2016, capstone project prepared by Centre for Water Resources Studies, Dalhousie University)

In the winter of 2016, the CWRS conducted a study assessing sources of fecal contamination and pathogen presence at four freshwater beaches in the HRM, and First Lake was included. The purpose of this study was to better understand the sources of fecal contamination and the presence of pathogens that lead to frequent beach closures. It was found that exceedances of the Health Canada guidelines were strongly correlated to heavy rainfall events after the beach season had ended. Methods including plating, microbial enrichment, and genetic microbial source tracking were used to enumerate E. coli levels and detect select pathogens and host-specific fecal contamination markers. It was found that the human marker was present primarily before beach season and the dog marker during beach season. E. Coli was determined to be an adequate indicator of microbial water quality as levels found below guidelines corresponded to lower pathogen and host-specific marker presence.

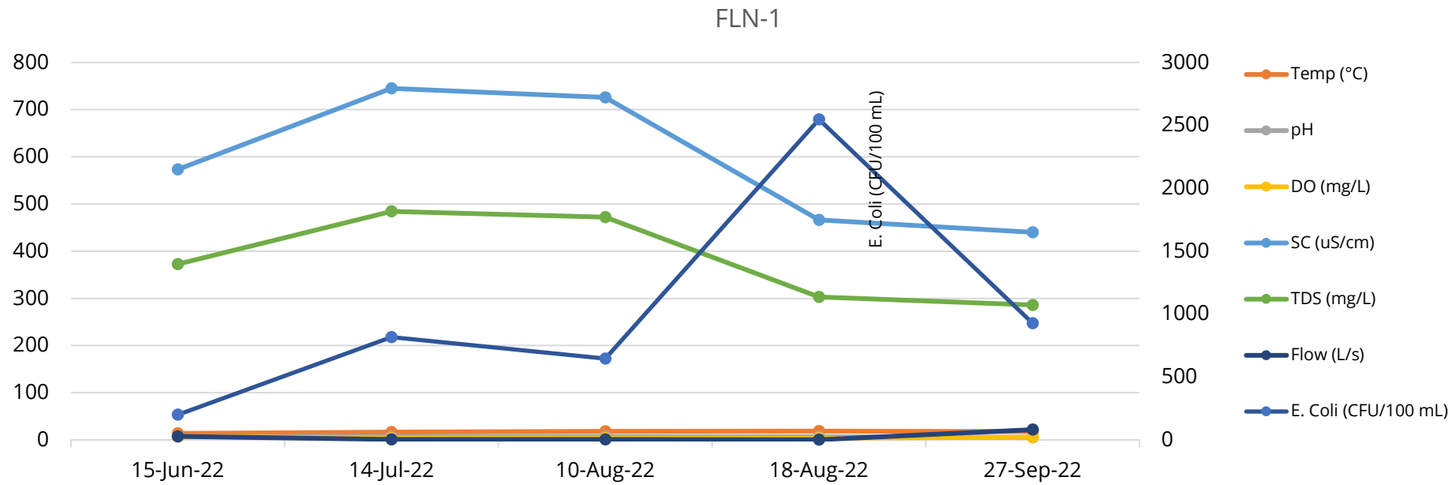
A paleolimnological record of anthropogenic impact on water quality in first lake, Lower Sackville, Nova Scotia (2013 Thesis, Drake Tymstra, Acadia University student).

This research highlighted that First Lake was naturally variable and productive before watershed development, resulting in it being naturally susceptible to water quality degradation. This dense watershed development has resulted in increased nutrient input to the lake, leading to increased productivity and oxygen consumption, which was already scarce due to the lake's morphometry and inability to mix well during storm events. First Lake appears to be vulnerable to degrading water quality.

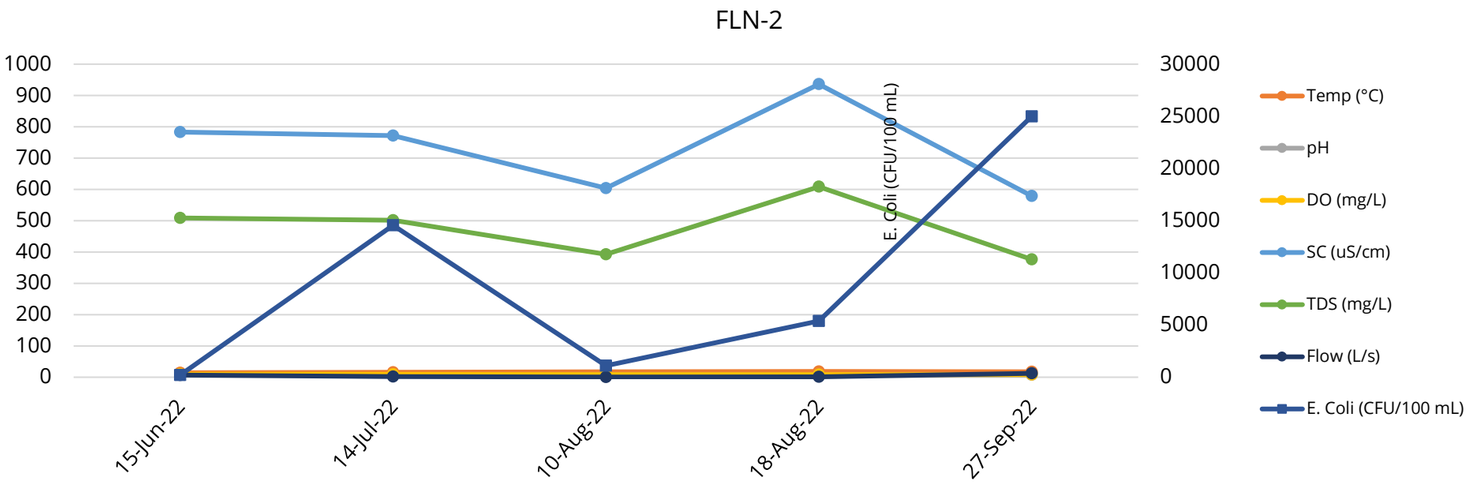
APPENDIX B

In-situ Water Quality Results

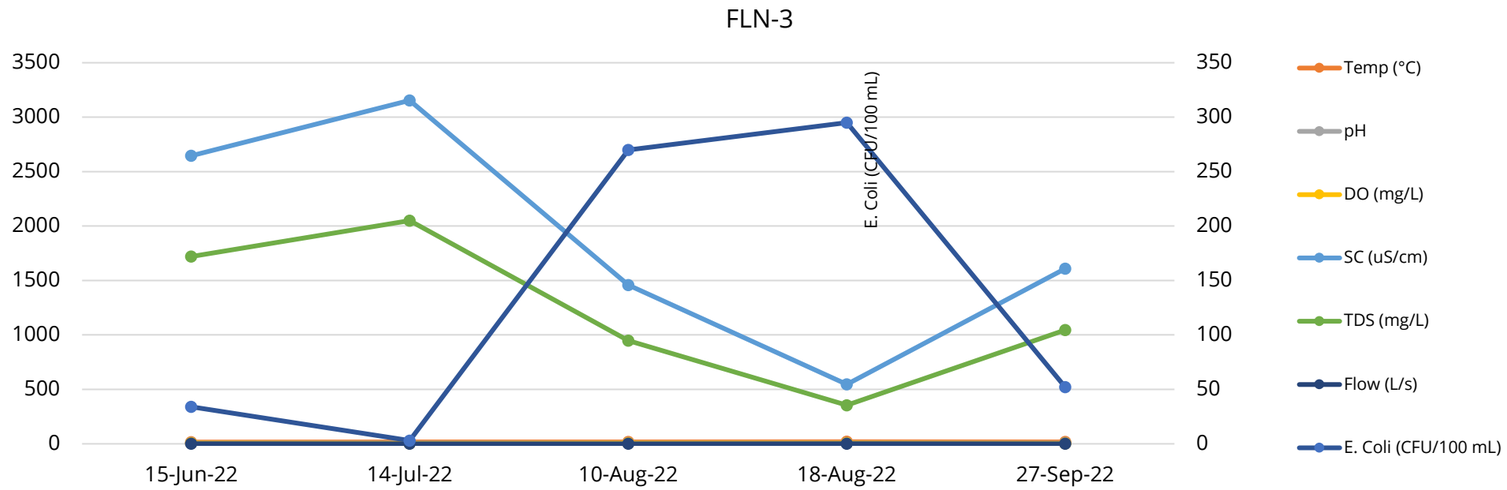
FLN-1	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	816	646	2547	927
Temp (°C)	13.8	16.4	18.1	18.7	17.7
pH	7.15	7.16	7.32	7	5.36
DO (mg/L)	7.03	3.71	3.65	3.91	6.03
SC (uS/cm)	573	745	726	466.3	440
TDS (mg/L)	372.45	484.25	471.9	303.095	286
Flow (L/s)	7.47	0.91	0.92	0.44	21.72



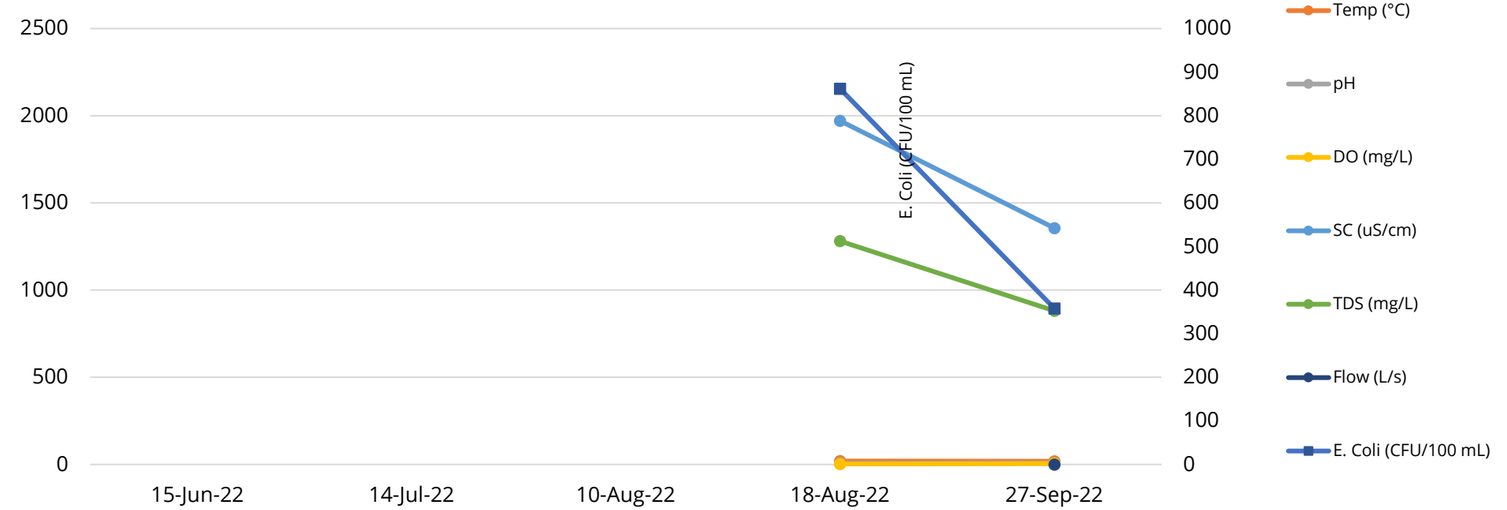
FLN-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	14560	1103	5390	25000
Temp (°C)	14.3	15.8	17.7	18.4	17.2
pH	7.83	8.08	8.12	8.02	7.33
DO (mg/L)	9.88	8.9	8.61	8.26	8.19
SC (uS/cm)	783	772	604	936	578.9
TDS (mg/L)	508.95	501.8	392.6	608.4	376.285
Flow (L/s)	6.93	1.95	0.62	0.98	12.27



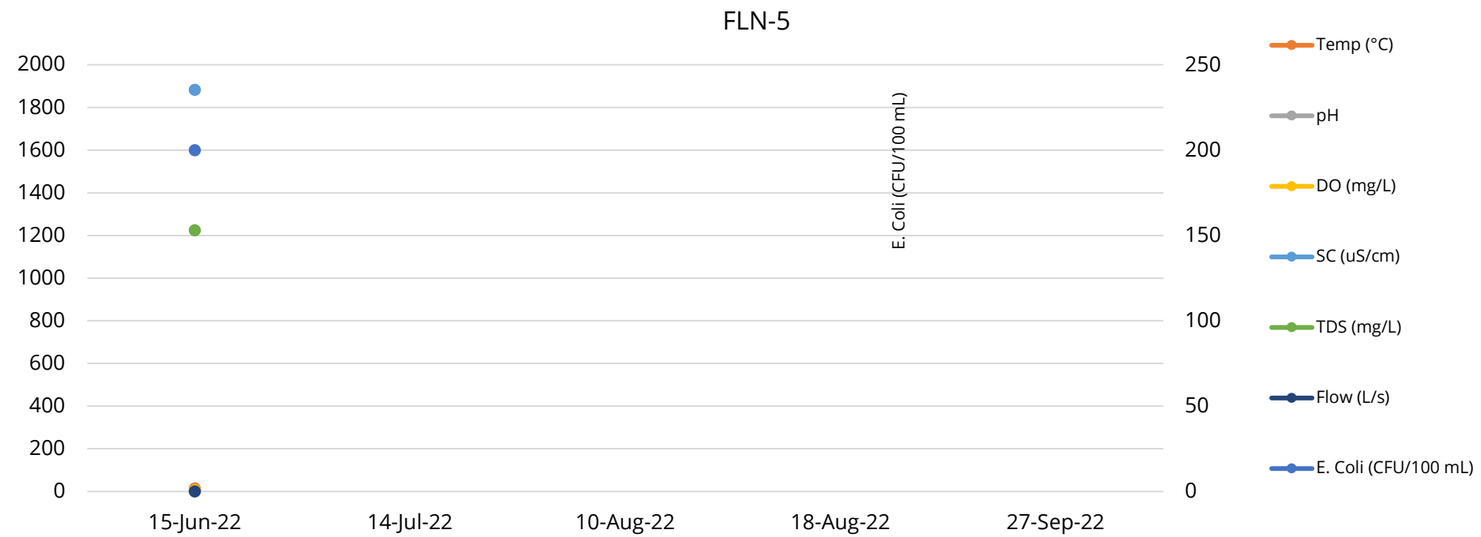
FLN-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	34	3	270	295	52
Temp (°C)	15.9	16.9	18.4	18.8	16.8
pH	7.3	7.47	7.57	7.27	7.01
DO (mg/L)	6.28	4.62	6.05	5.83	3.51
SC (uS/cm)	2646	3154	1458	546	1609
TDS (mg/L)	1719.9	2050.1	947.7	354.9	1045.85
Flow (L/s)	0.06	0.003	0.004	0.012	0.133



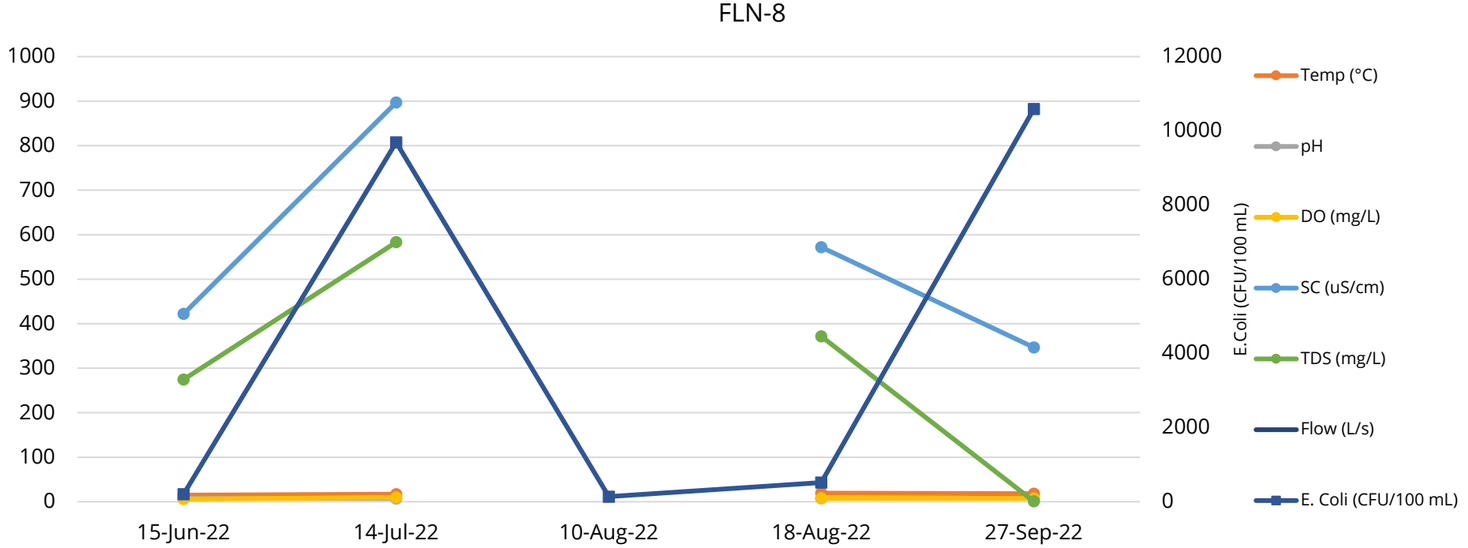
FLN-4	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	-	-	-	862	358
Temp (°C)	-	-	-	19.8	18.6
pH	-	-	-	6.76	7.63
DO (mg/L)	-	-	-	2.55	4.85
SC (uS/cm)	-	-	-	1971	1356
TDS (mg/L)	-	-	-	1281.15	881.4
Flow (L/s)	-	-	-	-	0.17



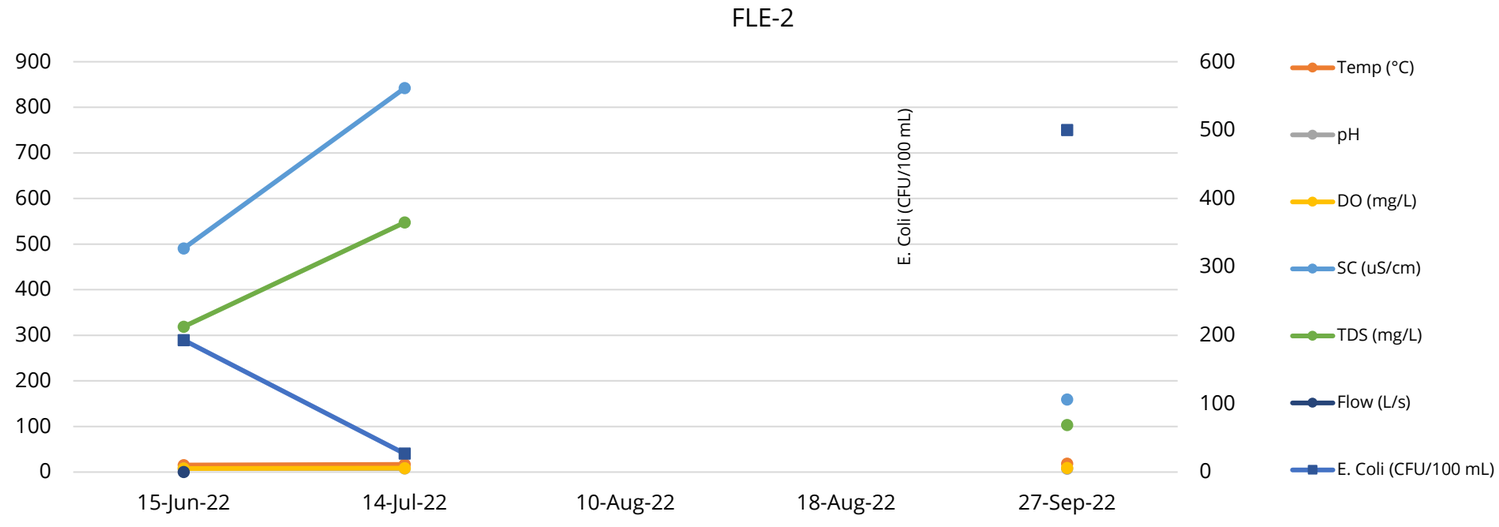
FLN-5	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	-	-	-	-
Temp (°C)	14.7	-	-	-	-
pH	7.21	-	-	-	-
DO (mg/L)	6.05	-	-	-	-
SC (uS/cm)	1883	-	-	-	-
TDS (mg/L)	1223.95	-	-	-	-
Flow (L/s)	0.60	-	-	-	-



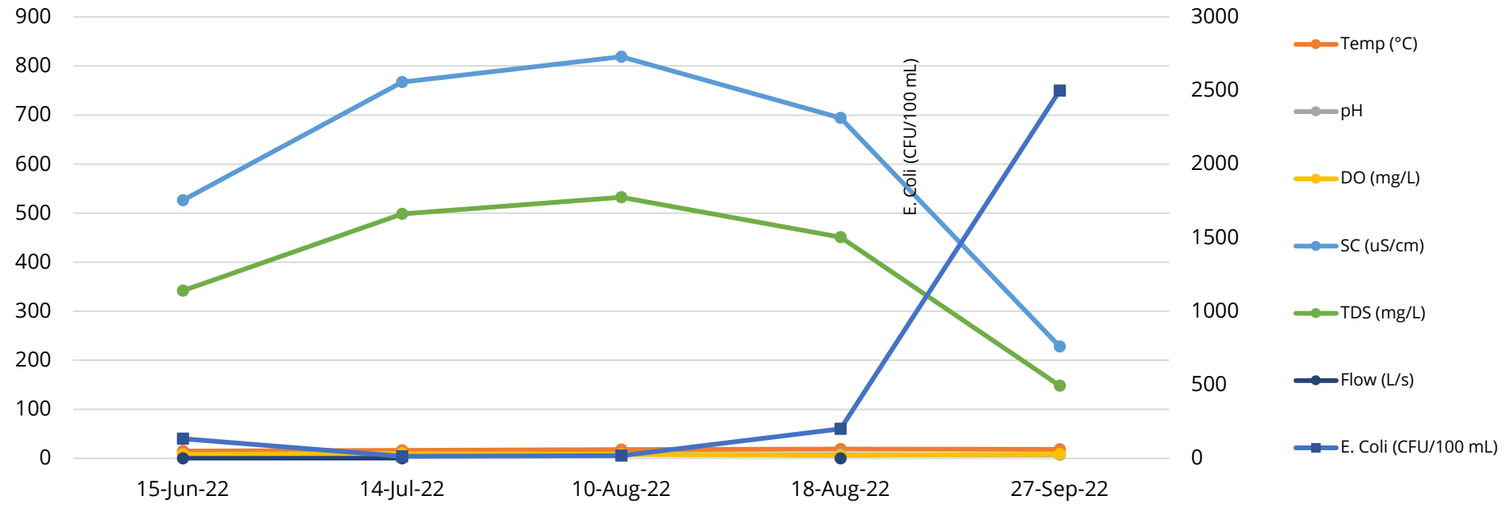
FLN-8	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	9691	138	515	10589
Temp (°C)	14.8	16.7	-	19.3	18
pH	7.64	7.2	-	7.63	7.71
DO (mg/L)	5.93	9.6	-	7.6	7.14
SC (uS/cm)	422.2	897	-	572	346.7
TDS (mg/L)	274.43	583.05	-	371.8	0.9
Flow (L/s)	1.00		-		



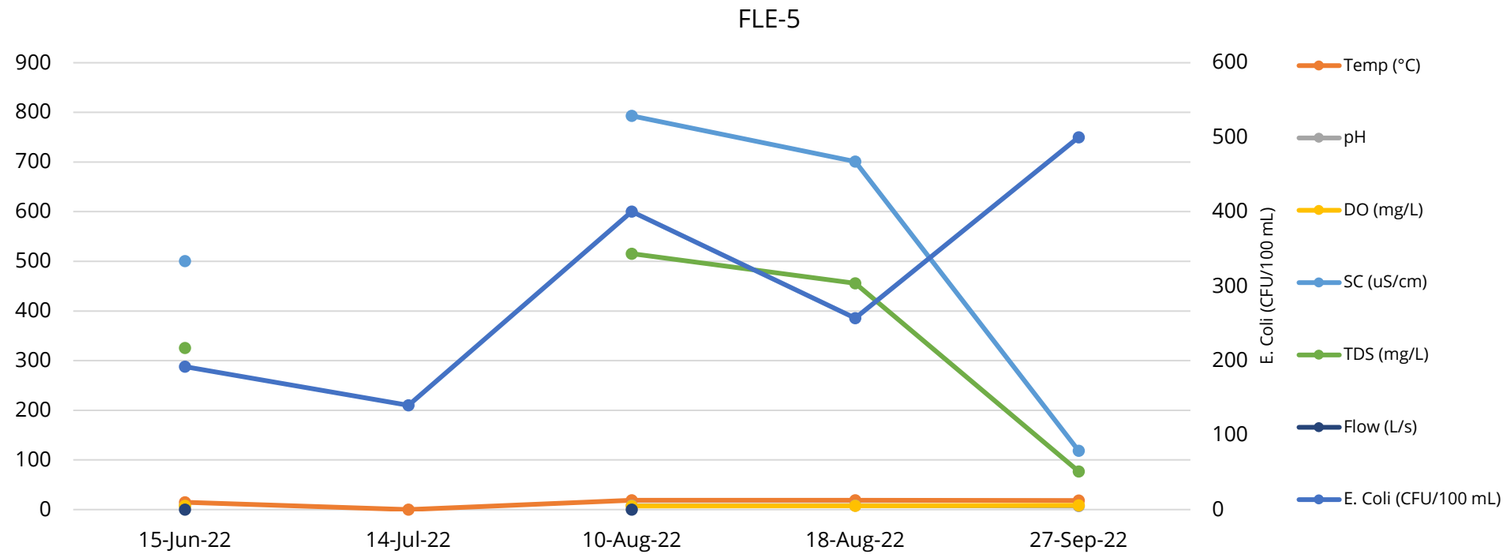
FLE-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	193	27	-	-	500
Temp (°C)	15.4	16.8	-	-	18.4
pH	7.75	7.73	-	-	7.32
DO (mg/L)	7.8	8.63	-	-	8.9
SC (uS/cm)	490.6	842	-	-	159.1
TDS (mg/L)	318.89	547.3	-	-	103.415
Flow (L/s)	0.11		-	-	



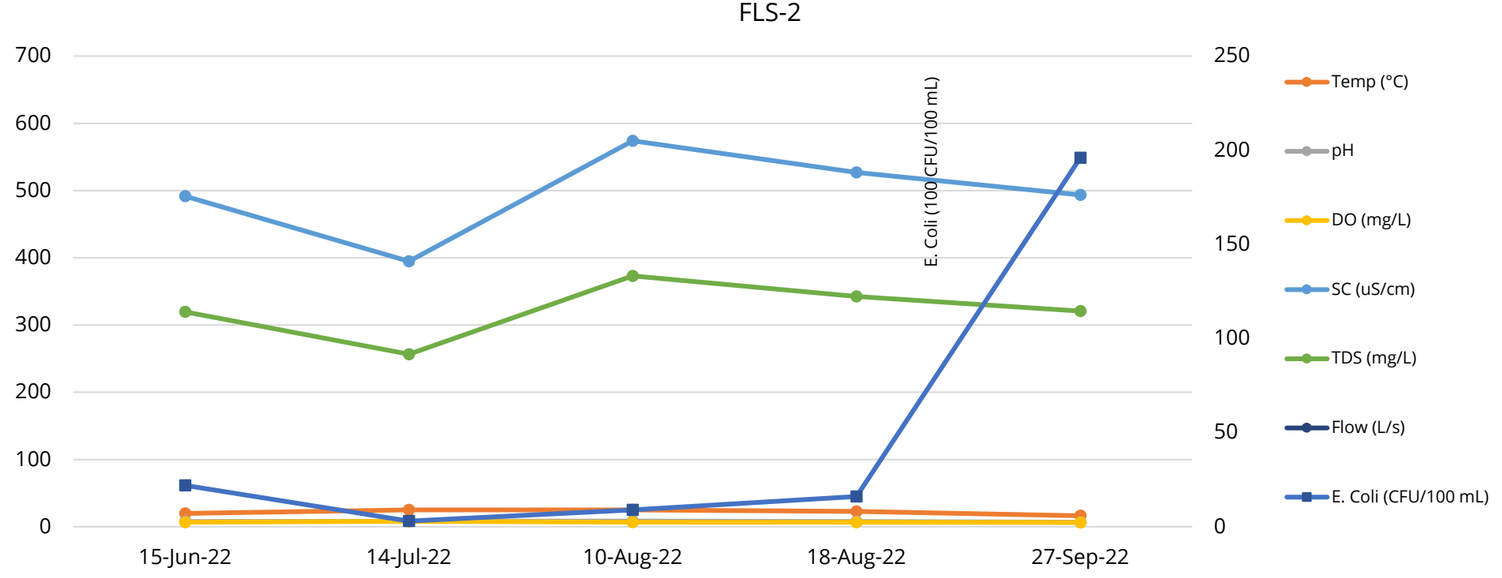
FLE-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	134	14	19	200	2500
Temp (°C)	14.9	16.6	17.9	19	18.2
pH	7.73	7.38	8.22	7.53	7.31
DO (mg/L)	8.12	10.04	8.3	6.14	8.51
SC (uS/cm)	526	767	819	694	227.9
TDS (mg/L)	341.9	498.55	532.35	451.1	148.135
Flow (L/s)	0.09	0.03	-	0.10	-



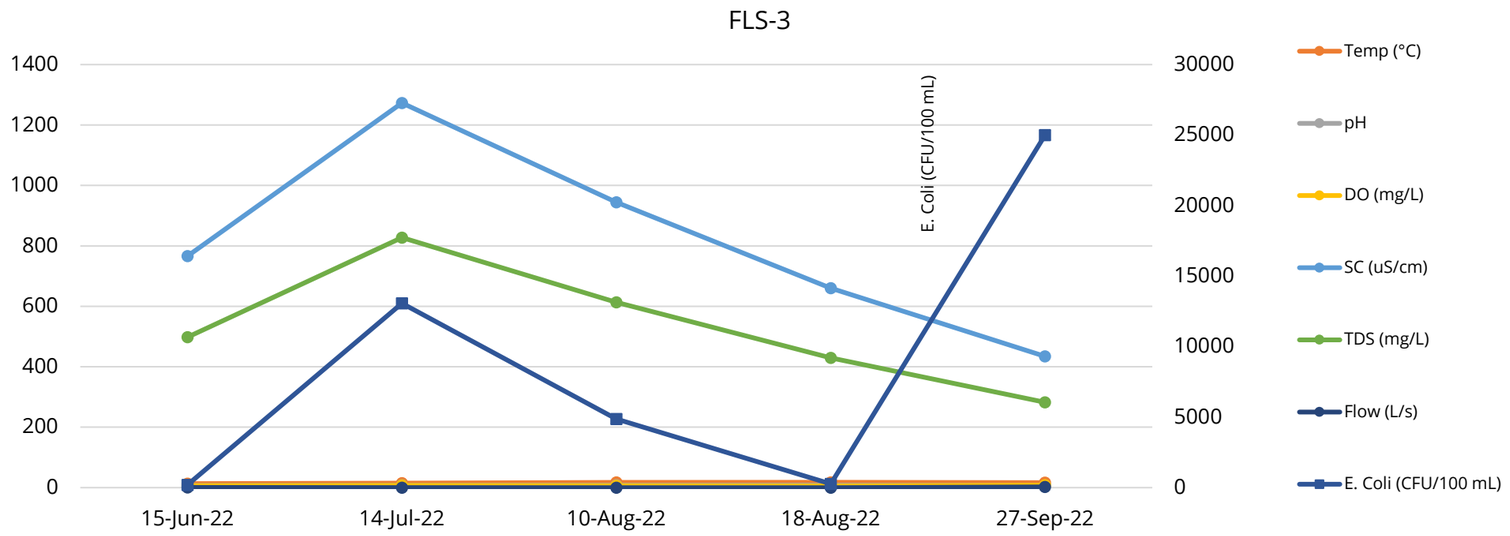
FLE-5	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	192	140	400	257	500
Temp (°C)	14.5	-	18.8	18.8	18.4
pH	7.31	-	8	7.85	7.05
DO (mg/L)	7.46	-	7.17	7.57	8.52
SC (uS/cm)	500.6	-	793	701	118.3
TDS (mg/L)	325.39	-	515.45	455.65	76.895
Flow (L/s)	0.09	-	0.02	-	-



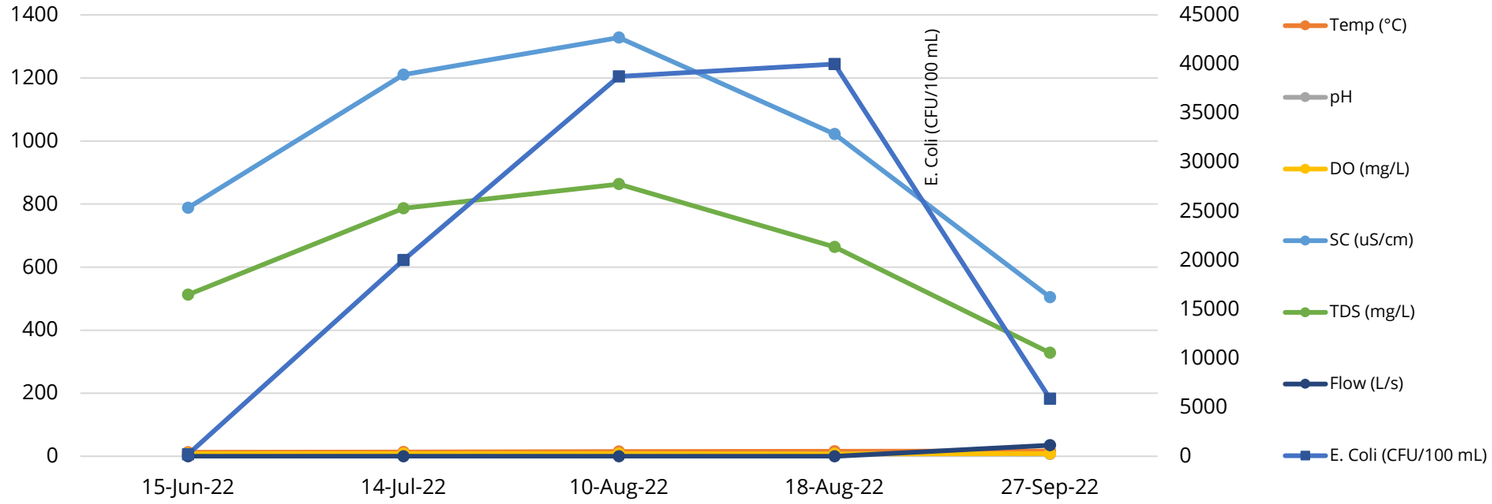
FLS-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	22	3	9	16	196
Temp (°C)	20	24.9	25	23	16.3
pH	7.79	8.24	8.45	7.85	6.77
DO (mg/L)	6.67	8.09	6.84	6.55	6.26
SC (uS/cm)	491.5	394.8	574	527	493.4
TDS (mg/L)	319.475	256.62	373.1	342.55	320.71
Flow (L/s)	-	-	-	-	-



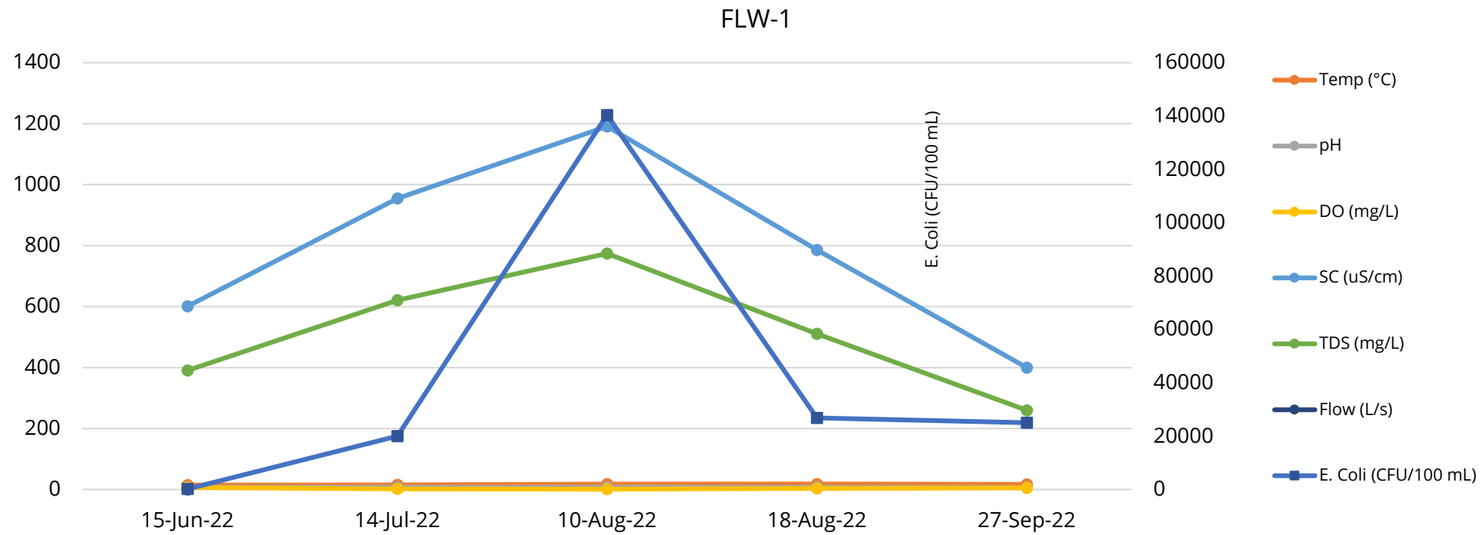
FLS-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	13064	4873	265	25000
Temp (°C)	13.2	14.9	17.3	17.7	16.7
pH	7.32	7.79	8.16	7.8	6.99
DO (mg/L)	6.78	7.72	6.35	5.73	7.88
SC (uS/cm)	766	1273	944	660	434.4
TDS (mg/L)	497.9	827.45	613.6	429	282.36
Flow (L/s)	0.29	0.10	0.11	0.13	2.41



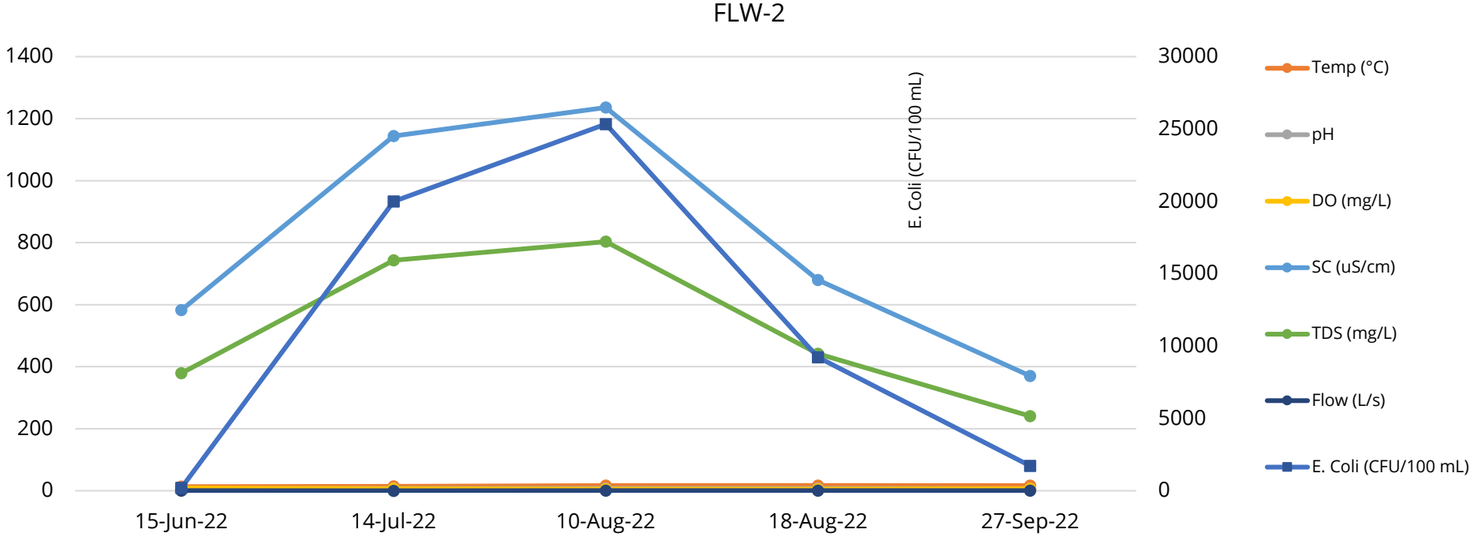
FLS-4	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	20000	38719	39985	5864
Temp (°C)	12.7	13.6	15.2	16.2	16.7
pH	7.46	7.76	7.96	7.62	6.97
DO (mg/L)	8.81	8.94	8.45	7.52	8.63
SC (uS/cm)	788	1210	1328	1022	504.7
TDS (mg/L)	512.2	786.5	863.2	664.3	328.055
Flow (L/s)	0.13	0.00	0.10	0.19	34.96



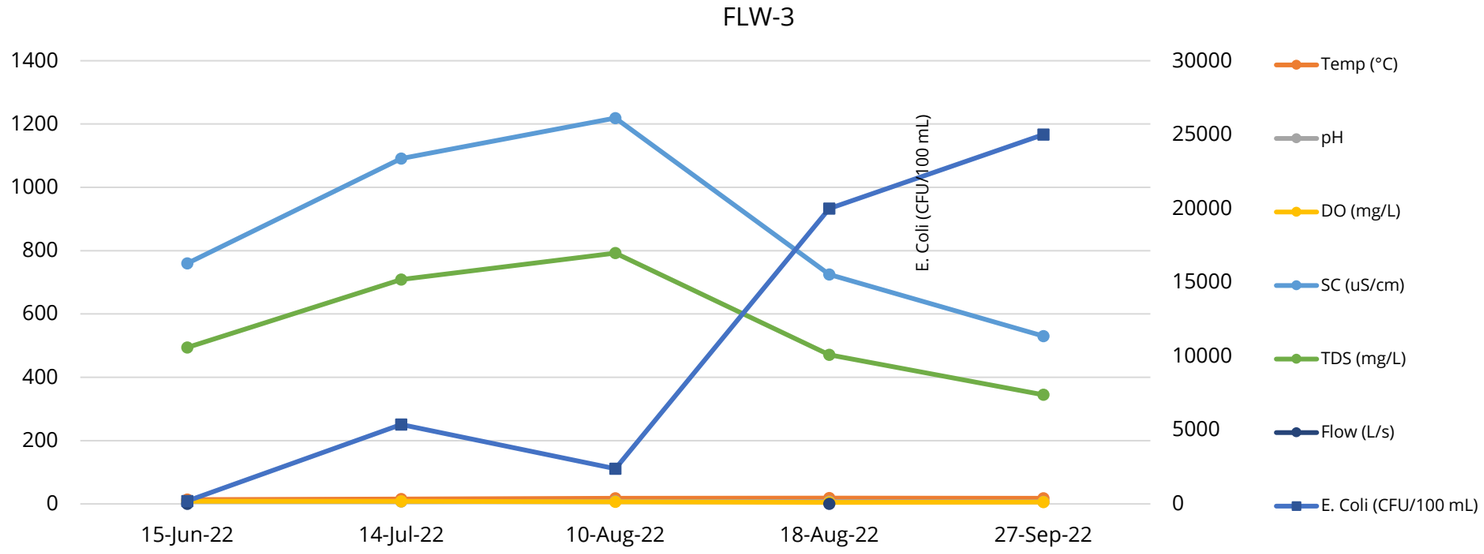
FLW-1	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	20000	140414	26877	25000
Temp (°C)	14.5	15.2	17.4	18	16.7
pH	7.44	7.39	7.65	7.43	6.5
DO (mg/L)	6.45	2	1.14	3.3	5.54
SC (uS/cm)	601	955	1191	786	400
TDS (mg/L)	390.65	620.75	774.15	510.9	260
Flow (L/s)	0.24	-	-	-	-



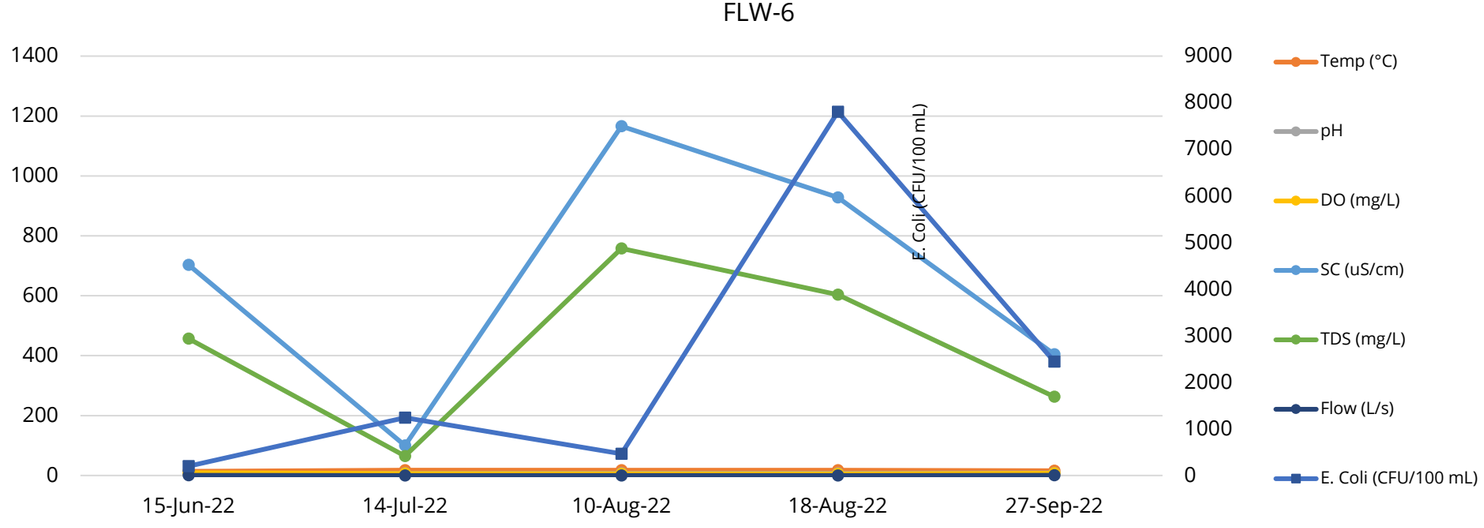
FLW-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	20000	25338	9218	1715
Temp (°C)	13.2	14.4	16.4	17	16.9
pH	7.53	7.69	7.92	7.59	6.83
DO (mg/L)	8.91	6.63	5.44	5.26	7.16
SC (uS/cm)	583	1144	1236	680	370.2
TDS (mg/L)	378.95	743.6	803.4	442	240.63
Flow (L/s)	0.14	0.01	0.02	0.03	0.32



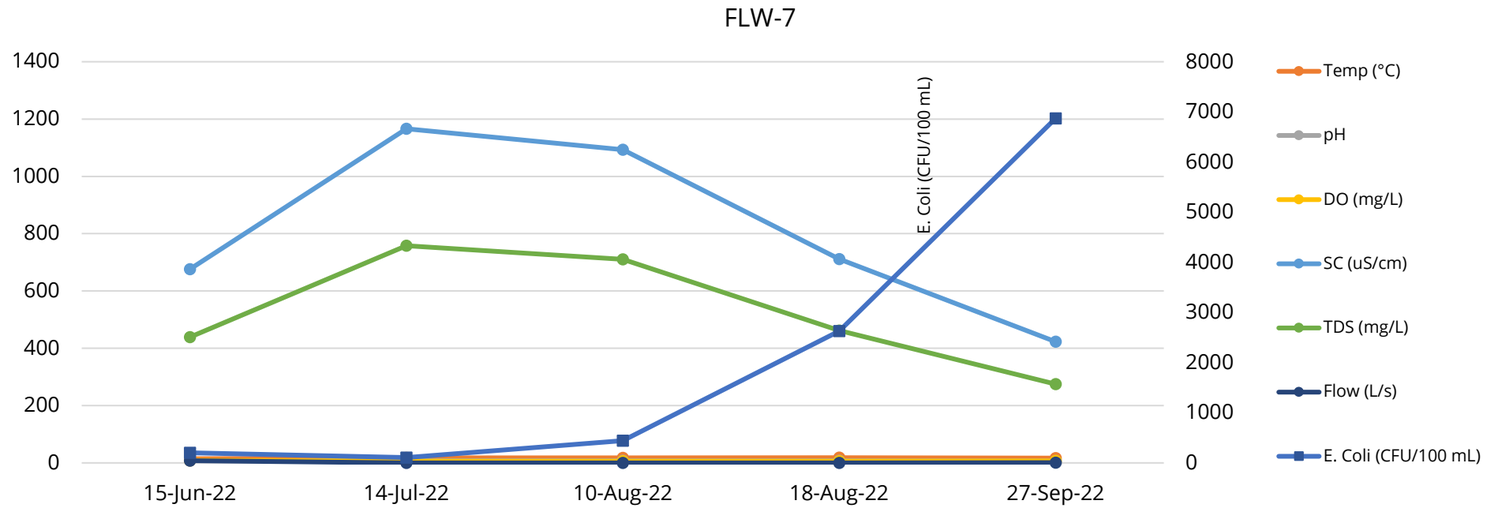
FLW-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	5377	2388	20000	25000
Temp (°C)	13.5	15.5	17.9	18.4	17.5
pH	7.88	7.76	8	7.64	6.89
DO (mg/L)	8.44	8.14	6.27	4.8	6.05
SC (uS/cm)	760	1091	1219	725	530.2
TDS (mg/L)	494	709.15	792.35	471.25	344.63
Flow (L/s)	0.26	-	-	0.00	-



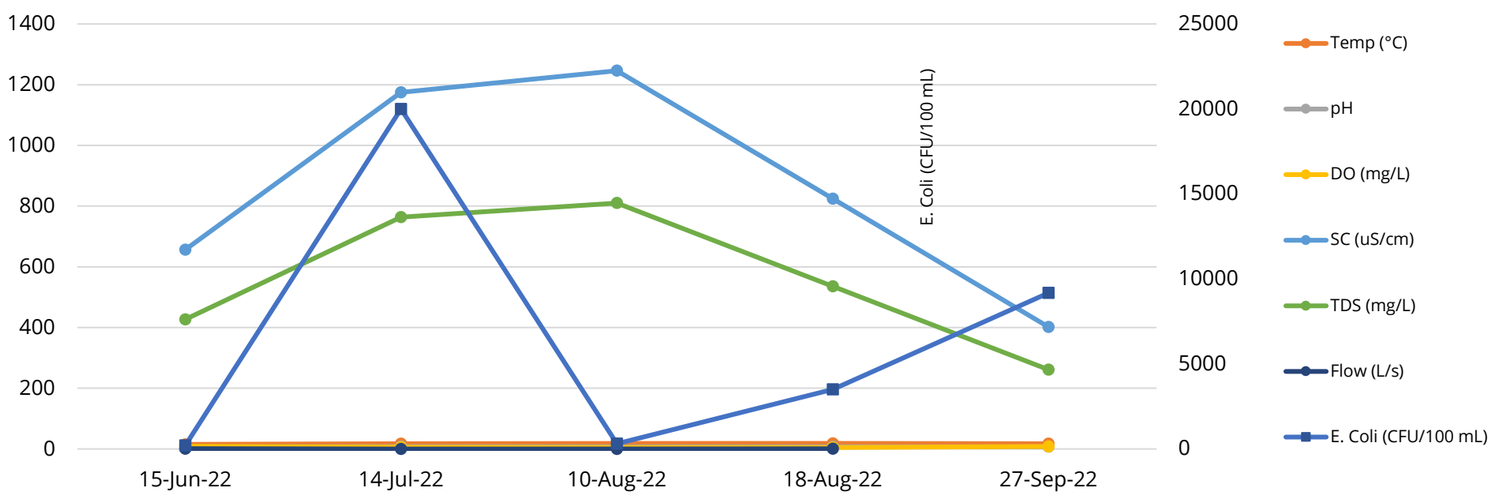
FLW-6	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	1243	464	7804	2442
Temp (°C)	13.9	17.7	17.2	17.3	16
pH	7.43	7.6	7.75	7.55	8.63
DO (mg/L)	9.51	6.65	5.76	5.5	7.26
SC (uS/cm)	703	100	1166	928	404.7
TDS (mg/L)	456.95	65	757.9	603.2	263.055
Flow (L/s)	0.33	0.02	0.01	0.18	0.67



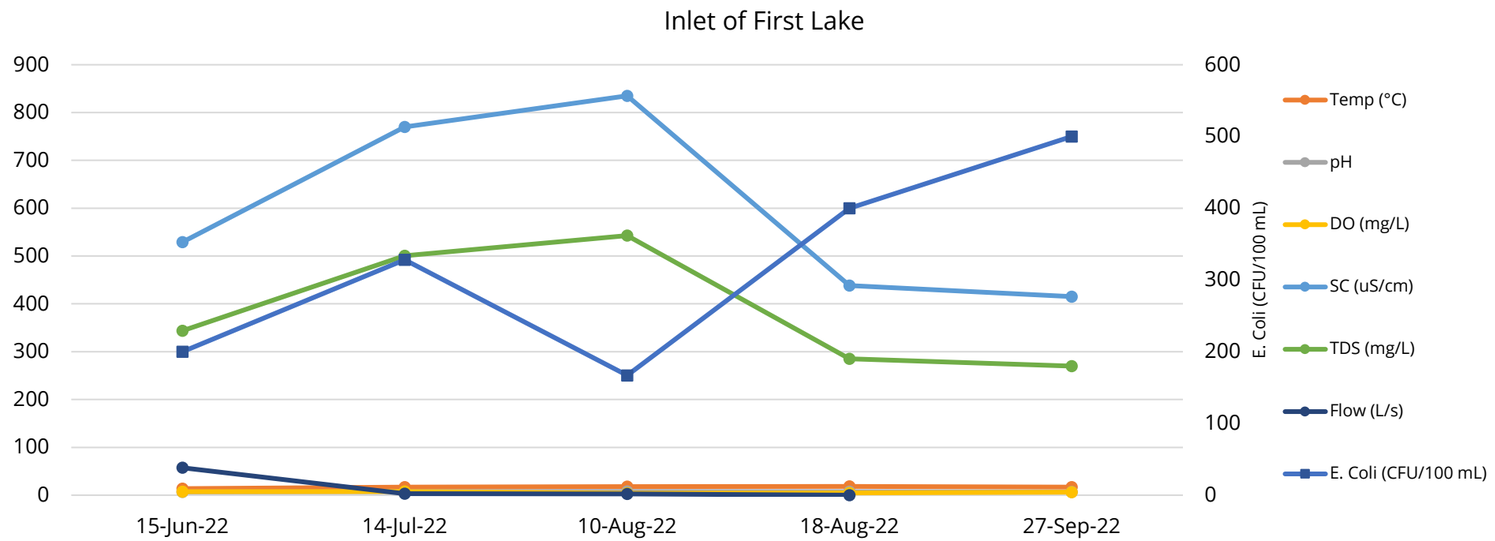
FLW-7	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	107	446	2631	6871
Temp (°C)	14.5	17.7	17.8	18.2	16.6
pH	7.95	7.91	7.69	7.79	7.25
DO (mg/L)	9.23	5.95	6.35	6.41	6.7
SC (uS/cm)	676	1166	1093	711	423
TDS (mg/L)	439.4	757.9	710.45	462.15	274.95
Flow (L/s)	7.77	0.07	0.01	0.18	0.75



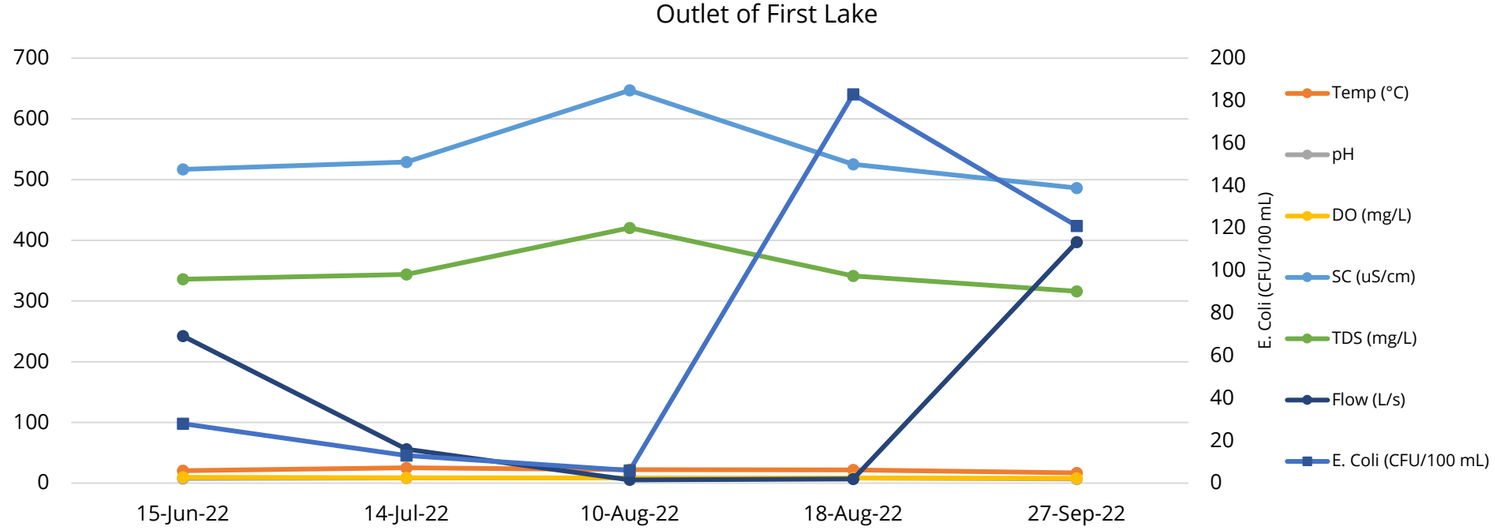
FLW-8	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	20000	305	3498	9177
Temp (°C)	15.1	17.7	17.8	18.3	16.9
pH	7.66	7.73	7.41	7.17	7.1
DO (mg/L)	8.65	5.63	5.12	4.77	7.88
SC (uS/cm)	656	1175	1246	824	401.6
TDS (mg/L)	426.4	763.75	809.9	535.6	261.04
Flow (L/s)	1.03	0.07	0.01	0.39	-



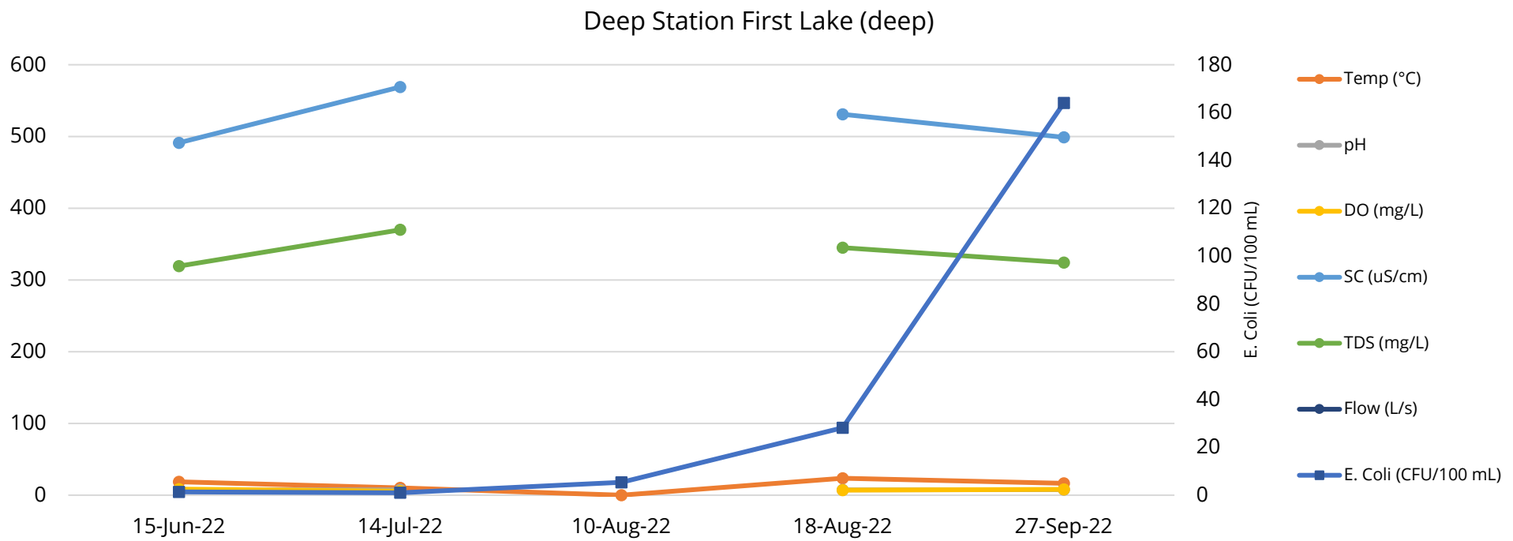
Inlet of First Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	200	328	167	400	500
Temp (°C)	13.7	17	17.8	18.3	16.6
pH	7.03	7.51	7.62	7.37	6.71
DO (mg/L)	7.3	7.63	3.97	4.95	6.07
SC (uS/cm)	529	770	835	438.3	415.2
TDS (mg/L)	343.85	500.5	542.75	284.895	269.88
Flow (L/s)	57.30	3.20	2.53	0.01	-



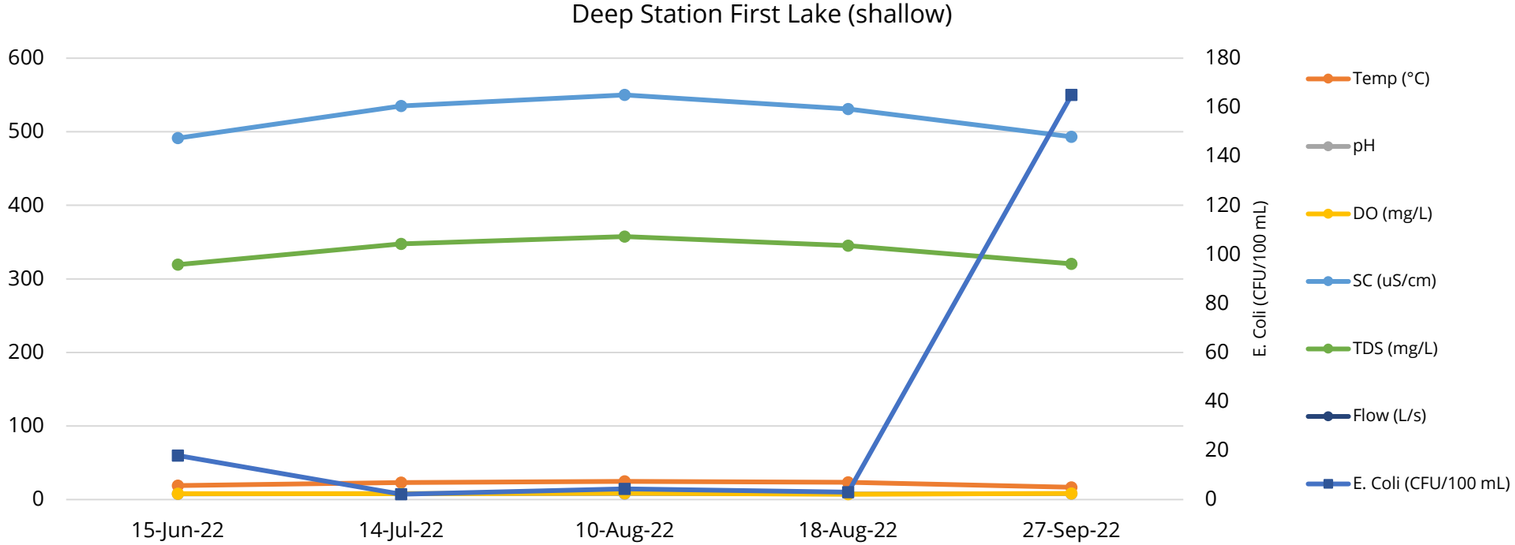
Outlet of First Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	28	13	6	183	121
Temp (°C)	20.6	25.3	22.3	21.6	16.9
pH	7.73	8.34	8.66	8.4	6.85
DO (mg/L)	9.58	9.02	8.32	8.38	7.93
SC (uS/cm)	517	529	647	525	486.2
TDS (mg/L)	336.05	343.85	420.55	341.25	316.03
Flow (L/s)	242.37	55.88	5.35	6.63	397.02



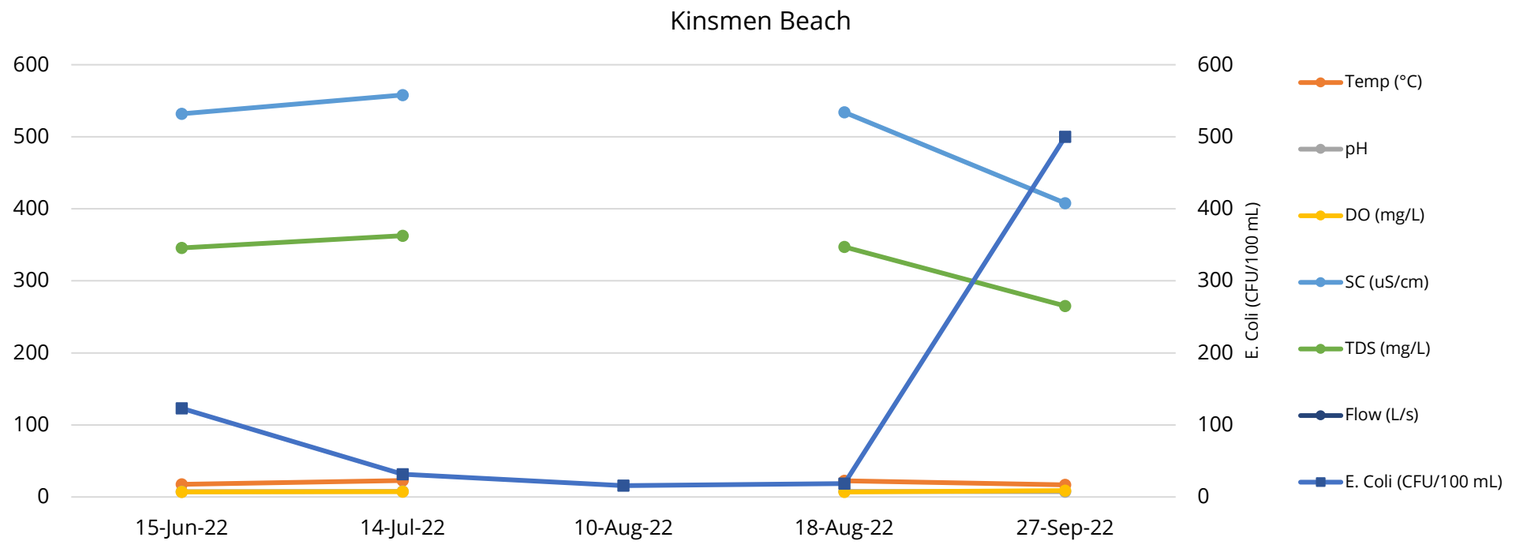
Deep Station First Lake (deep)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	1	1	5	28	164
Temp (°C)	18.8	10.1	-	23.6	16.4
pH	7.44	7.52	-	7.4	7.7
DO (mg/L)	8.46	5.66	-	6.9	8.13
SC (uS/cm)	491.2	569	-	531	499
TDS (mg/L)	319.28	369.85	-	345.15	324.35
Flow (L/s)	-	-	-	-	-



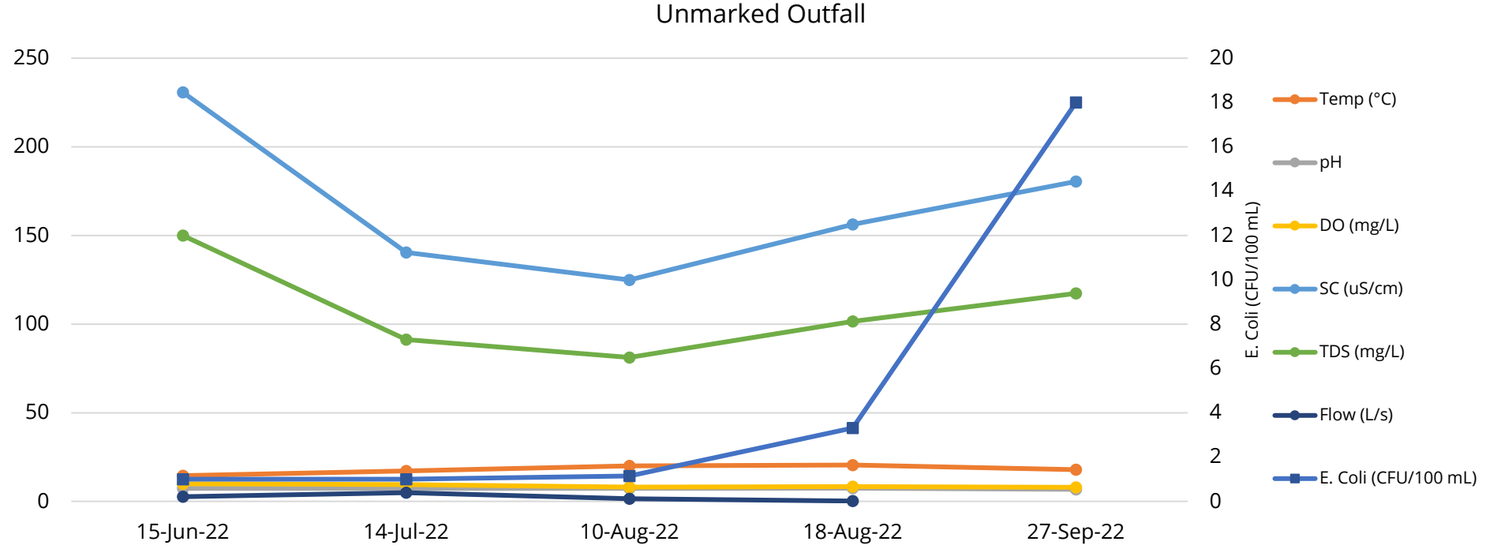
Deep Station First Lake (shallow)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	18	2	4	3	165
Temp (°C)	18.9	23.1	24.7	23.6	16.7
pH	7.61	8.08	7.99	7.69	7.88
DO (mg/L)	8.14	8.17	8.73	7.19	8.45
SC (uS/cm)	491.3	535	550	531	493
TDS (mg/L)	319.345	347.75	357.5	345.15	320.45
Flow (L/s)	-	-	-	-	-



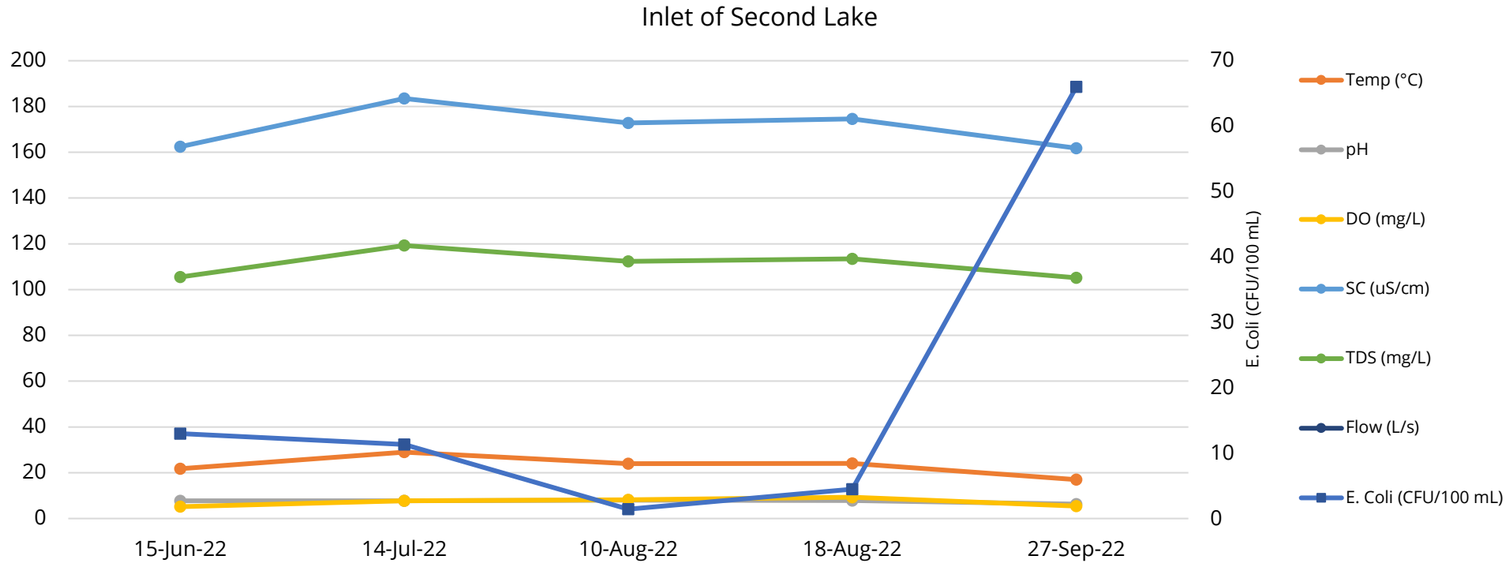
Kinsmen Beach	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	123	31.50446	15.72068	18.67653	500
Temp (°C)	17.7	22.8	-	22.6	16.8
pH	7.39	7.62	-	7.69	7.41
DO (mg/L)	7	7.4	-	6.87	8.85
SC (uS/cm)	532	558	-	534	407.9
TDS (mg/L)	345.8	362.7	-	347.1	265.135
Flow (L/s)	-	-	-	-	-



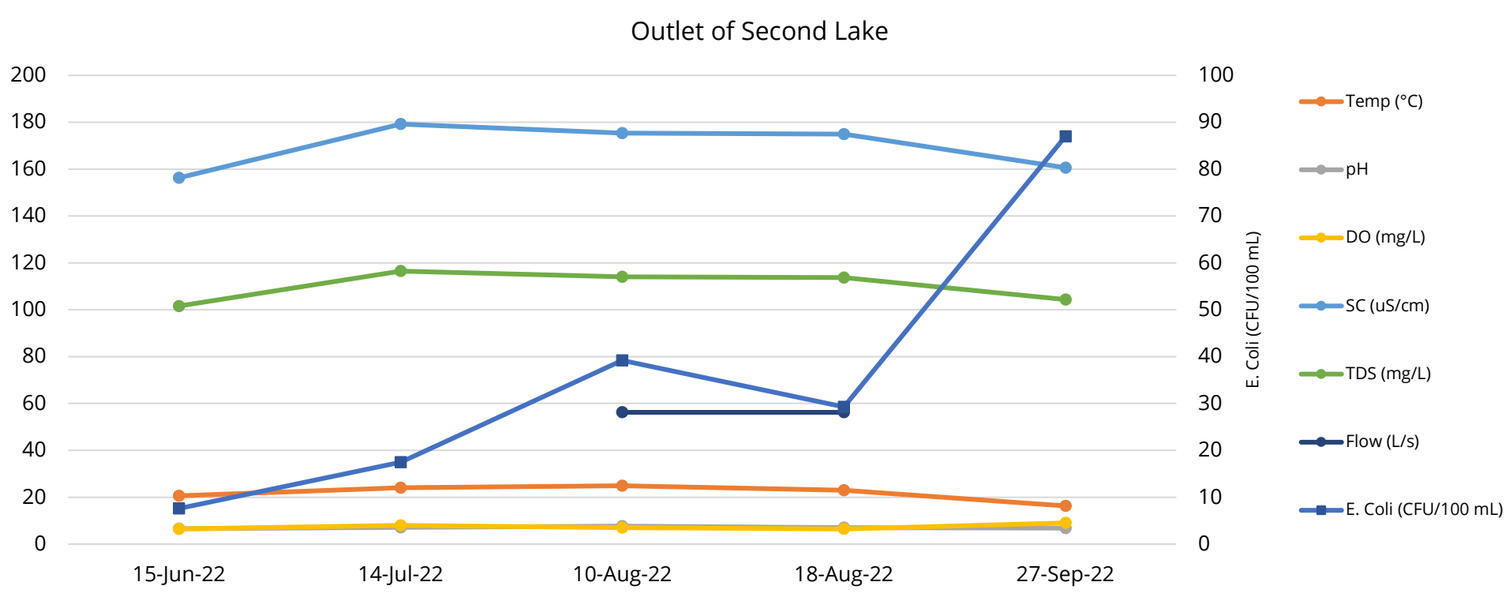
Unmarked Outfall	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	1	1	1	3	18
Temp (°C)	14.5	17.1	20	20.5	17.9
pH	7.35	7.35	7.38	7.42	6.76
DO (mg/L)	9.91	9.51	8.11	8.31	7.92
SC (uS/cm)	230.7	140.4	124.9	156.2	180.5
TDS (mg/L)	149.955	91.26	81.185	101.53	117.325
Flow (L/s)	2.66	4.88	1.43	0.18	-



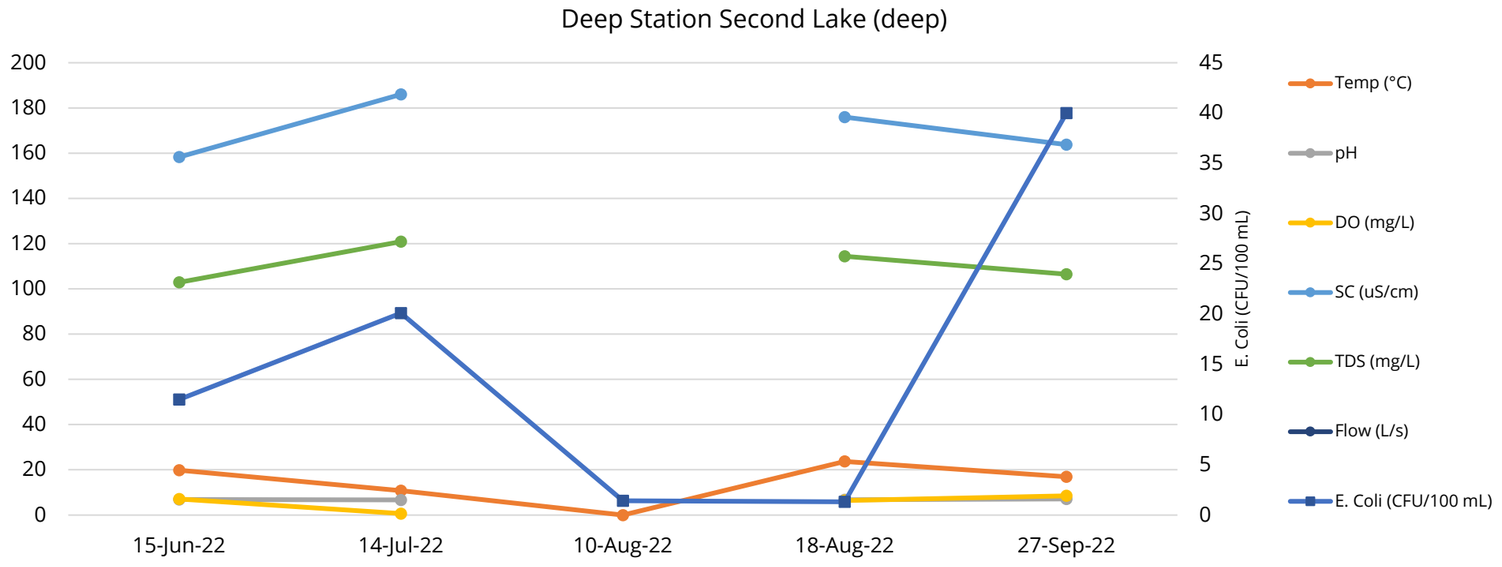
Inlet of Second Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	13	11	1	4	66
Temp (°C)	21.8	29	24	24.1	17
pH	7.75	7.7	8.02	7.91	6.31
DO (mg/L)	5.18	7.76	8.24	9.31	5.42
SC (uS/cm)	162.4	183.5	172.8	174.6	161.8
TDS (mg/L)	105.56	119.275	112.32	113.49	105.17
Flow (L/s)	-	-	-	-	-



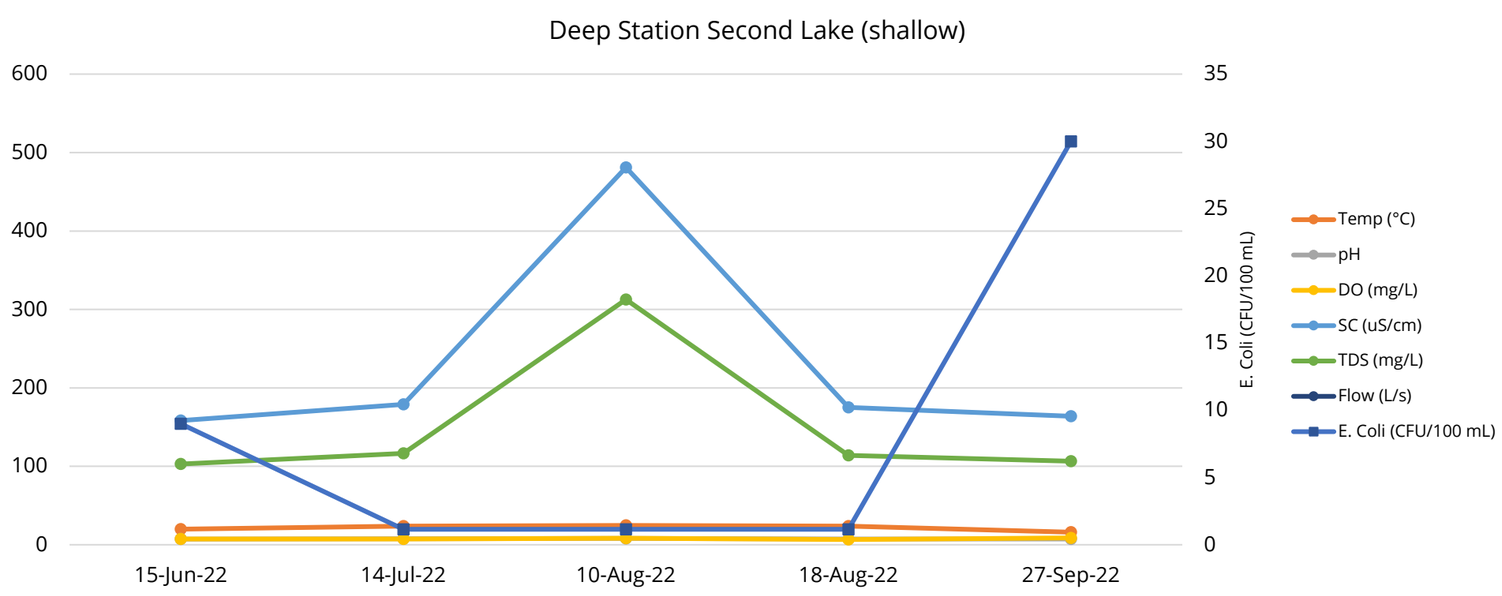
Outlet of Second Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	8	17	39	29	87
Temp (°C)	20.6	24.1	24.9	23	16.3
pH	6.56	7.11	7.67	6.99	6.86
DO (mg/L)	6.51	7.95	7.05	6.45	9.03
SC (uS/cm)	156.3	179.2	175.4	174.9	160.6
TDS (mg/L)	101.595	116.48	114.01	113.685	104.39
Flow (L/s)	-	-	56.23	56.23	-



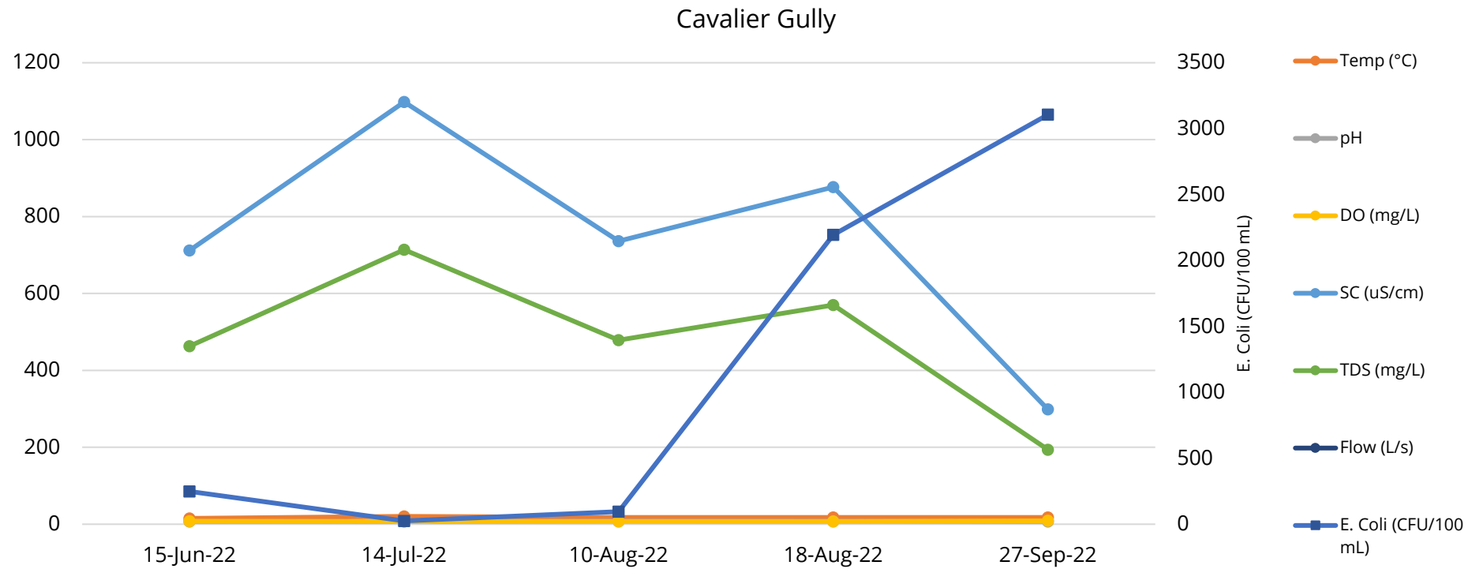
Deep Station Second Lake (deep)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	12	20	1	1	40
Temp (°C)	19.8	10.8	-	23.7	16.9
pH	6.87	6.7	-	6.78	7.12
DO (mg/L)	7.14	0.66	-	6.4	8.5
SC (uS/cm)	158.3	186	-	176	163.8
TDS (mg/L)	102.895	120.9	-	114.4	106.47
Flow (L/s)	-	-	-	-	-



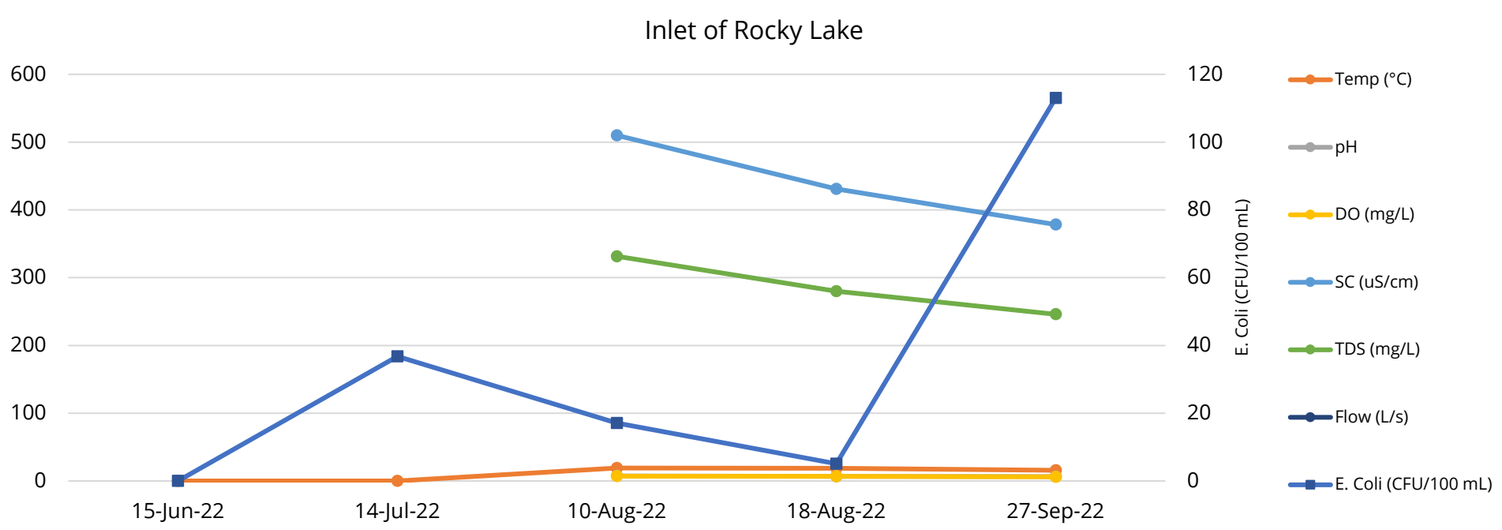
Deep Station Second Lake (shallow)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	9	1	1	1	30
Temp (°C)	19.9	23.8	24.6	23.7	16
pH	7.19	7.55	8.07	7.41	7.21
DO (mg/L)	7.34	7.46	8.38	6.64	8.7
SC (uS/cm)	158.3	179	481	175	163.9
TDS (mg/L)	102.895	116.35	312.65	113.75	106.535
Flow (L/s)	-	-	-	-	-



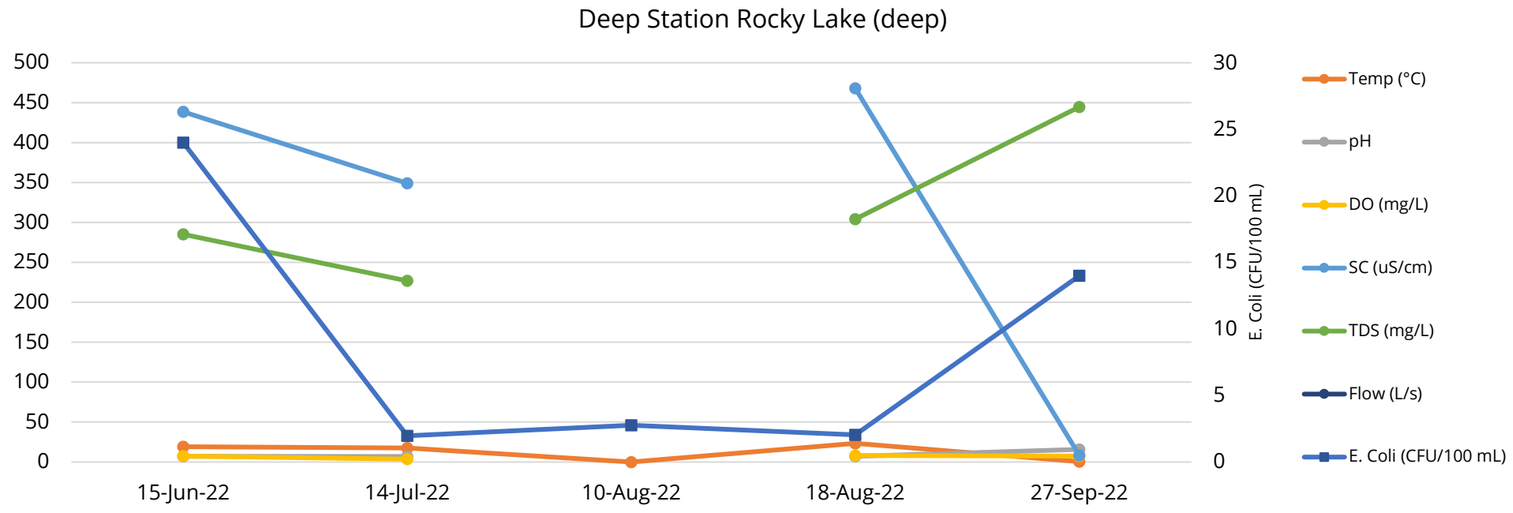
Cavalier Gully	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	248	25	96	2195	3106
Temp (°C)	15.2	20.4	17.5	17.4	17.6
pH	7.31	7.43	8.04	7.95	7.05
DO (mg/L)	7.9	7.14	7.29	7.21	8.76
SC (uS/cm)	712	1098	736	877	298.4
TDS (mg/L)	462.8	713.7	478.4	570.05	193.96
Flow (L/s)	-	-	-	-	-



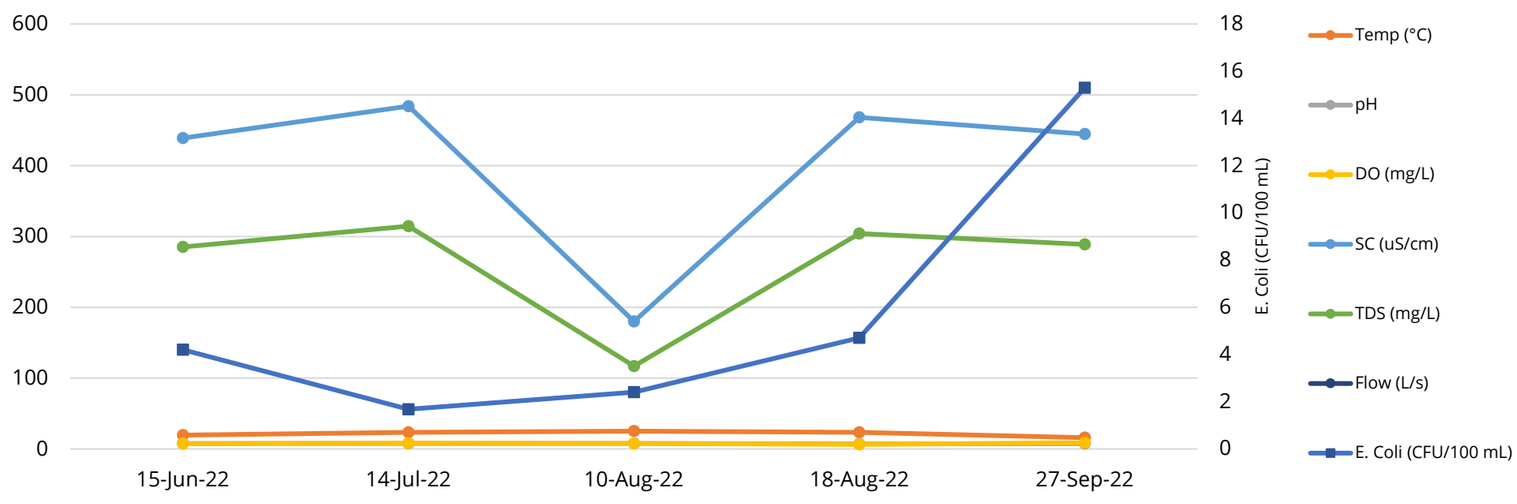
Inlet of Rocky Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	-	37	17	5	113
Temp (°C)	-	-	19.1	18.6	15.7
pH	-	-	7.45	6.98	6.44
DO (mg/L)	-	-	7.07	6.97	6.09
SC (uS/cm)	-	-	510	430.9	378.3
TDS (mg/L)	-	-	331.5	280.085	245.895
Flow (L/s)	-	-	-	-	-



Deep Station Rocky Lake (deep)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	24	2	3	2	14
Temp (°C)	19.3	17.7	-	23.4	10:25
pH	7.21	6.93	-	7.23	15.8
DO (mg/L)	7.4	3.6	-	8.15	7.45
SC (uS/cm)	438.6	349	-	468	8.33
TDS (mg/L)	285.09	226.85	-	304.2	444.7
Flow (L/s)	-	-	-	-	-



Deep Station Rocky Lake (shallow)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
E. coli (CFU/100 mL)	4	2	2	5	15
Temp (°C)	19.4	23.6	25.1	23.3	15.9
pH	7.6	7.59	7.79	7.06	7.53
DO (mg/L)	7.33	8.08	7.64	6.47	8.8
SC (uS/cm)	438.9	484	180	468	444.5
TDS (mg/L)	285.285	314.6	117	304.2	288.925
Flow (L/s)	-	-	-	-	-



APPENDIX C

Third-Party Accredited Laboratory Certificates

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
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FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804.00
AGAT WORK ORDER: 22X908522
MICROBIOLOGY ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Jun 20, 2022
PAGES (INCLUDING COVER): 16
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

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Certificate of Analysis

AGAT WORK ORDER: 22X908522

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-15 **DATE REPORTED: 2022-06-20**

			SAMPLE DESCRIPTION:	FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4	FLN-1-5	FLW-7-1	FLW-7-2	FLW-7-3
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 08:11	2022-06-15 08:11	2022-06-15 08:11	2022-06-15 08:11	2022-06-15 08:11	2022-06-15 10:36	2022-06-15 10:36	2022-06-15 10:36
Parameter	Unit	G / S	RDL	3982478	3982481	3982482	3982483	3982484	3982485	3982486	3982487
E. Coli (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	>200	>200	>200

			SAMPLE DESCRIPTION:	FLW-7-4	FLW-7-5	FLW-8-1	FLW-8-2	FLW-8-3	FLW-8-4	FLW-8-5	Kinsmen Beach-1
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 10:36	2022-06-15 10:36	2022-06-15 10:59	2022-06-15 10:59	2022-06-15 10:59	2022-06-15 10:59	2022-06-15 10:59	2022-06-15 07:57
Parameter	Unit	G / S	RDL	3982488	3982489	3982490	3982491	3982492	3982493	3982494	3982495
E. Coli (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	>200	>200	135

			SAMPLE DESCRIPTION:	Kinsmen Beach-2	Kinsmen Beach-3	Kinsmen Beach-4	Kinsmen Beach-5	Unmarked Outfall-1	Unmarked Outfall-2	Unmarked Outfall-3	Unmarked Outfall-4
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 07:57	2022-06-15 07:57	2022-06-15 07:57	2022-06-15 07:57	2022-06-15 10:16	2022-06-15 10:16	2022-06-15 10:16	2022-06-15 10:16
Parameter	Unit	G / S	RDL	3982496	3982497	3982498	3982499	3982500	3982501	3982502	3982503
E. Coli (MF)	CFU/100 mL		1	92	63	180	199	<1	<1	<1	<1

			SAMPLE DESCRIPTION:	Unmarked Outfall-5	Culvert Upstream-1	Culvert Upstream-2	Culvert Upstream-3	Culvert Upstream-4	Culvert Upstream-5	Side Channel 1	Side Channel 2
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 10:16	2022-06-15 09:16	2022-06-15 09:16	2022-06-15 09:16	2022-06-15 09:16	2022-06-15 09:16	2022-06-15 09:20	2022-06-15 09:20
Parameter	Unit	G / S	RDL	3982504	3982505	3982506	3982507	3982508	3982509	3982510	3982511
E. Coli (MF)	CFU/100 mL		1	<1	>200	>200	>200	>200	>200	>200	>200

Certified By: Lara Knox

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Certificate of Analysis

AGAT WORK ORDER: 22X908522

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-15 **DATE REPORTED: 2022-06-20**

			SAMPLE DESCRIPTION:	Side Channel 3	Side Channel 4	Side Channel 5	FLN 5-1	FLN 5-2	FLN 5-3	FLN 5-4	FLN 5-5
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 09:20	2022-06-15 09:20	2022-06-15 09:20	2022-06-15 08:57	2022-06-15 08:57	2022-06-15 08:57	2022-06-15 08:57	2022-06-15 08:57
Parameter	Unit	G / S	RDL	3982512	3982513	3982514	3982515	3982516	3982517	3982518	3982519
E. Coli (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	>200	>200	>200

			SAMPLE DESCRIPTION:	FLN 8-1	FLN 8-2	FLN 8-3	FLN 8-4	FLN 8-5	FLE-5-1	FLE-5-2	FLE-5-3
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 09:25	2022-06-15 09:25	2022-06-15 09:25	2022-06-15 09:25	2022-06-15 09:25	2022-06-15 10:15	2022-06-15 10:15	2022-06-15 10:15
Parameter	Unit	G / S	RDL	3982520	3982521	3982522	3982523	3982524	3982525	3982526	3982527
E. Coli (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	199	192	188

			SAMPLE DESCRIPTION:	FLE-5-4	FLE-5-5	FLS-2-1	FLS-2-2	FLS-2-3	FLS-2-4	FLS-2-5	FLS-3-1
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 10:15	2022-06-15 10:15	2022-06-15 10:37	2022-06-15 10:37	2022-06-15 10:37	2022-06-15 10:37	2022-06-15 10:37	2022-06-15 10:54
Parameter	Unit	G / S	RDL	3982528	3982529	3982530	3982531	3982532	3982533	3982534	3982535
E. Coli (MF)	CFU/100 mL		1	193	186	32	18	20	24	19	>200

			SAMPLE DESCRIPTION:	FLS-3-2	FLS-3-3	FLS-3-4	FLS-3-5	FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4
			SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:	2022-06-15 10:54	2022-06-15 10:54	2022-06-15 10:54	2022-06-15 10:54	2022-06-15 11:40	2022-06-15 11:40	2022-06-15 11:40	2022-06-15 11:40
Parameter	Unit	G / S	RDL	3982536	3982537	3982538	3982539	3982540	3982541	3982542	3982543
E. Coli (MF)	CFU/100 mL		1	>200	>200	>200	>200	>200	>200	>200	>200

Certified By: Lara Knox

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Certificate of Analysis

AGAT WORK ORDER: 22X908522

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-15 **DATE REPORTED: 2022-06-20**

			SAMPLE DESCRIPTION:		FLS-4-5	Deep Station First Lake (deep)-1	Deep Station First Lake (deep)-2	Deep Station First Lake (deep)-3	Deep Station First Lake (deep)-4	Deep Station First Lake (deep)-5	Deep Station Rocky Lake (deep)-1	Deep Station Rocky Lake (deep)-2
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 11:40	2022-06-15 07:50	2022-06-15 07:50	2022-06-15 07:50	2022-06-15 07:50	2022-06-15 07:50	2022-06-15 12:45	2022-06-15 12:45
Parameter	Unit	G / S	RDL		3982544	3982545	3982546	3982547	3982548	3982549	3982550	3982551
E. Coli (MF)	CFU/100 mL		1		>200	<1	1	3	1	2	25	43

			SAMPLE DESCRIPTION:		Deep Station Rocky Lake (deep)-3	Deep Station Rocky Lake (deep)-4	Deep Station Rocky Lake (deep)-5	Deep Station Second Lake (deep)-1	Deep Station Second Lake (deep)-2	Deep Station Second Lake (deep)-3	Deep Station Second Lake (deep)-4	Deep Station Second Lake (deep)-5
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 12:45	2022-06-15 12:45	2022-06-15 12:45	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50
Parameter	Unit	G / S	RDL		3982552	3982553	3982554	3982555	3982556	3982557	3982558	3982559
E. Coli (MF)	CFU/100 mL		1		41	10	17	13	12	13	11	9

			SAMPLE DESCRIPTION:		Deep Station First Lake (shallow)-1	Deep Station First Lake (shallow)-2	Deep Station First Lake (shallow)-3	Deep Station First Lake (shallow)-4	Deep Station First Lake (shallow)-5	Deep Lake Rocky Lake (shallow)-1	Deep Lake Rocky Lake (shallow)-2	Deep Lake Rocky Lake (shallow)-3
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 07:45	2022-06-15 07:45	2022-06-15 07:45	2022-06-15 07:45	2022-06-15 07:45	2022-06-15 12:45	2022-06-15 12:45	2022-06-15 12:45
Parameter	Unit	G / S	RDL		3982560	3982561	3982562	3982563	3982564	3982565	3982566	3982567
E. Coli (MF)	CFU/100 mL		1		18	23	20	25	9	4	2	8

			SAMPLE DESCRIPTION:		Deep Lake Rocky Lake (shallow)-4	Deep Lake Rocky Lake (shallow)-5	Deep Lake Second Lake (shallow)-1	Deep Lake Second Lake (shallow)-2	Deep Lake Second Lake (shallow)-3	Deep Lake Second Lake (shallow)-4	Deep Lake Second Lake (shallow)-5	Cav-1
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 12:45	2022-06-15 12:45	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 13:50	2022-06-15 15:05
Parameter	Unit	G / S	RDL		3982568	3982569	3982570	3982571	3982572	3982573	3982574	3982575
E. Coli (MF)	CFU/100 mL		1		4	5	8	9	10	8	10	254

Certified By: Lara Knox

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Certificate of Analysis

AGAT WORK ORDER: 22X908522

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-15 **DATE REPORTED: 2022-06-20**

SAMPLE DESCRIPTION:				Cav-2	Cav-3	Cav-4	Cav-5	Outlet of Second Lake 1	Outlet of Second Lake 2	Outlet of Second Lake 3	Outlet of Second Lake 4
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-06-15 15:05	2022-06-15 15:05	2022-06-15 15:05	2022-06-15 15:05	2022-06-15 14:40	2022-06-15 14:40	2022-06-15 14:40	2022-06-15 14:40
Parameter	Unit	G / S	RDL	3982576	3982577	3982578	3982579	3982580	3982581	3982582	3982583
E. Coli (MF)	CFU/100 mL		1	277	248	211	256	12	10	6	5

SAMPLE DESCRIPTION:				Outlet of Second Lake 5	Inlet of Second Lake 1	Inlet of Second Lake 2	Inlet of Second Lake 3	Inlet of Second Lake 4	Inlet of Second Lake 5
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-06-15 14:40	2022-06-15 15:40	2022-06-15 15:40	2022-06-15 15:40	2022-06-15 15:40	2022-06-15 15:40
Parameter	Unit	G / S	RDL	3982584	3982585	3982586	3982587	3982588	3982589
E. Coli (MF)	CFU/100 mL		1	7	25	10	13	10	11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: Lara Knox

AGAT Laboratories

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Dartmouth, Nova Scotia
CANADA B3B 1M2
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Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X908522

PROJECT: 220804.00

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

Unit 122 • 11 Morris Drive
Dartmouth, NS
B3B 1M2
webearth.agatlabs.com • www.agatlabs.com
P: 902.468.8718 • F: 902.468.8924

Chain of Custody Record

Laboratory Use Only

Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 10.4, 10.2, 9.9
Hold Time: 9.7, 10.2, 10.2
AGAT Job Number: 22X908522

Notes: E.Coli - CFU

Report Information

Company: CBCL
Contact:
Address:
Phone: Fax:
Client Project #: 220804.00
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Michael Brophy
   Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
   Email: mfraser@cbcl.ca

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)

Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
'22 JUN 15 5:28pm
Date Required:

Regulatory Requirements (Check):

☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No Salt Water Sample ☐ Yes ☐ No
Reg. No.:

Invoice To Same Yes ☐ / No ☐

Company: CBCL
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLN-1-1	June 15 8:11am	water	1	
FLN-1-2	↓	↓	↓	
FLN-1-3	↓	↓	↓	
FLN-1-4	↓	↓	↓	
FLN-1-5	↓	↓	↓	
FLW-7-1	June 15 10:36am	↓	↓	
FLW-7-2	↓	↓	↓	
FLW-7-3	↓	↓	↓	
FLW-7-4	↓	↓	↓	
FLW-7-5	↓	↓	↓	
FLW-8-1	June 15 10:59am	↓	↓	
FLW-8-2	↓	↓	↓	

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Melissa Fraser	June 15		
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time
	5:28pm	Kallen	

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 1 of 10
N°: 73502

Document ID: GW-133-1502-002
Date revised: May 10, 2016

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature:
Hold Time:
AGAT Job Number: 22X908522
Notes:

Report Information
Company:
Contact:
Address:
Phone: Fax:
Client Project #:
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
22 JUN 15 5:29 PM
Date Required:

Invoice To Same Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLW-8-3	June 15 10:59am	water	1	
FLW-8-4	↓	↓	↓	
FLW-8-5	↓	↓	↓	
Kinsmen Beach-1	June 15 7:57am	↓	↓	
" " 2	↓	↓	↓	
" " 3	↓	↓	↓	
" " 4	↓	↓	↓	
" " 5	↓	↓	↓	
unmarked outfall-1	June 15 10:1bam	↓	↓	
" " -2	↓	↓	↓	
" " -3	↓	↓	↓	
" " -4	↓	↓	↓	

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E. coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name): Melissa Fraser
Date/Time
Samples Received By (Print Name):
Date/Time
Samples Relinquished By (Sign):
Date/Time
Samples Received By (Sign):
Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 2 of 10
N°: 73503

Document ID: DW-133-1502.002
Date revised: May 19, 2016

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
'22 JUN 15 5:29PM
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)
unmarked outfall 5	June 15 - 10:16am	water	B																									
culvert upstream-1	June 15 9:16am																											
" -2																												
" -3																												
" -4																												
" -5																												
side channel 1	June 15 9:20am																											
side channel 2																												
side channel 3																												
side channel 4																												
side channel 5																												

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time

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Page 3 of 10
N°: 73504

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes:
'22 JUN 15 5:29PM

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)
FLN S-1	June 15 8:57am	water	4																								
FLN S-2	↓	↓	↓																								
FLN S-3																											
FLN S-4																											
FLN S-5	↓																										
FLN B-1	June 15 9:25am																										
FLN B-2	↓																										
FLN B-3																											
FLN B-4																											
FLN B-5	↓	↓	↓																								
FLE-5-1	June 15 10:15am																										
FLE-5-2	↓																										

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time

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Page 4 of 10
N°: 73505

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature:
Hold Time:
AGAT Job Number: 22X908522
Notes: '22 JUN 15 5:29PM

Report Information

Company:
Contact:
Address:

Phone: Fax:
Client Project #:
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name:
   Email:
2. Name:
   Email:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)

Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Regulatory Requirements (Check):

☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No Salt Water Sample ☐ Yes ☐ No
Reg. No.:

Invoice To

Same Yes ☐ / No ☐
Company:
Contact:
Address:

Phone: Fax:
PO/Credit Card#:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLE-5-3	June 15 10:15am	water	1	
FLE-5-4				
FLE-5-5				
FLS-2-1	June 15 10:37am			
FLS-2-2				
FLS-2-3				
FLS-2-4				
FLS-2-5				
FLS-3-1	June 15 10:54am			
FLS-3-2				
FLS-3-3				
FLS-3-4				

Sample Identification	Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)
FLE-5-3																								
FLE-5-4																								
FLE-5-5																								
FLS-2-1																								
FLS-2-2																								
FLS-2-3																								
FLS-2-4																								
FLS-2-5																								
FLS-3-1																								
FLS-3-2																								
FLS-3-3																								
FLS-3-4																								

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign): [signature]	Date/Time	Samples Received By (Sign): [signature]	Date/Time

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Page 5 of 10
Nº: 73506

Document ID: DIV-133-1502.002
Date revised: May 19, 2016

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P: 902.468.8718 • F: 902.468.8924

Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
'22 JUN 15 5:29PM
Rush TAT ☐ Same day ☐ 1 day
☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLS-3-S	June 15 10:54am	water	1	
FLS-4-1	June 15 11:4am			
FLS-4-2				
FLS-4-3				
FLS-4-4				
FLS-4-5				
deep station in first Lake (deep) -1	June 15 7:50am			
" " 2				
" " 3				
" " 4				
" " 5				

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name): _____ Date/Time _____
Samples Relinquished By (Sign): _____ Date/Time _____
Samples Received By (Print Name): _____ Date/Time _____
Samples Received By (Sign): _____ Date/Time _____

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 10 of 10
N°: 73507

Document ID: DIV-133-1502.002

Date revised: May 19, 2016

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
22 JUN 15 3:25PM
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
Deep Station - 1	June 15 12:45pm	water	1	
Rocky Lake - 2				
(deep) - 3				
" " - 4				
" " - 5				
Deep station - 1	June 15 1:50pm			
Second Lake - 2				
(deep) - 3				
" - 4				
" - 5				
Deep Station First 1	June 15 9:45am			
Lake (shallow) 2				

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign): Mike	Date/Time	Samples Received By (Sign): Kaitlin	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 7 of 10
N°: 73508

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P: 902.468.8718 • F: 902.468.8924

Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes: *Samples should be "Deep Station"*

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
DeepLake First -3	June 15 7:45am	water	1	
Lake (shallow) -4	↓	↓	↓	
" " -5				
Deep Lake Rocky -1	June 15 12:45pm			
Lake (shallow) -2	↓			
" " -3				
" " -4				
" " -5				
Deep Lake second 1	June 15 1:50pm			
Lake (shallow) 2	↓			
" " 3				
" " 4				

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 8 of 10
N°: 73509

AGAT Laboratories

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Dartmouth, NS
B3B 1M2
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P: 902.468.8718 • F: 902.468.8924

Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
22 JUN 2022 5:29PM
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
Deep Lake Second Lake (Shallow)	June 15, 1:50pm	water	1	
Cav-1	June 15 3:05pm			
Cav-2				
Cav-3				
Cav-4				
Cav-5				
Outlet of Second Lake 1	June 15 2:40pm			
" " 2				
" " 3				
" " 4				
" " 5				

Field Filtered/Preserved | Standard Water Analysis | Metals: ☐ Total ☐ Diss ☐ Available | Mercury | ☐ BOD ☐ CBOD | pH | ☐ TSS ☐ TDS ☐ VSS | TKN | Total Phosphorus | Phenols | Tier 1: TPH/BTEX (PIRI) ☐ low level | Tier 2: TPH/BTEX Fractionation | CCME-CWS TPH/BTEX | VOC | THM | HAA | PAH | PCB | TC + EC ☐ P/A ☐ MPN ☐ MF | ☐ HPC ☐ Pseudomonas | Fecal Coliform ☐ MPN ☐ MF | Other: E. coli | Other: | Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time

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Page 9 of 10
N°: 73510

Document ID: DIV 133 150 002
Date revised: May 19, 2016

AGAT Laboratories

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: _____
Hold Time: _____
AGAT Job Number: 22X908522
Notes:

Report Information
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
Client Project #: _____
AGAT Quotation: _____
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: _____
Email: _____
2. Name: _____
Email: _____

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day '22 JUN 15 5:30pm
☐ 2 days ☐ 3 days
Date Required: _____

Invoice To Same Yes ☐ / No ☐
Company: _____
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other _____

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
Inlet of Second Lake #1	June 15 3:40pm	water	1	
" #-2	↓	↓	↓	
" #-3				
" #-4				
" #-5				

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E. coli	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time

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Yellow Copy - AGAT
White Copy- AGAT

Page 10 of 10
N°: 73511

Document ID: DM-133 1502.01

Date revised: May 19, 2016

AGAT Laboratories

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CANADA B3B 1M2
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FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: ANDREW MACINTOSH
PROJECT: 220804.00
AGAT WORK ORDER: 22X908804
MICROBIOLOGY ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Jun 20, 2022
PAGES (INCLUDING COVER): 8
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

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Dartmouth, Nova Scotia
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FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X908804
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: ANDREW MACINTOSH
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-16

DATE REPORTED: 2022-06-20

			SAMPLE DESCRIPTION:		FLE-2-1	FLE-2-2	FLE-2-3	FLE-2-4	FLE-2-5	FLE-3-1	FLE-3-2	FLE-3-3
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 16:15	2022-06-15 16:15	2022-06-15 16:15	2022-06-15 16:15	2022-06-15 16:15	2022-06-15 16:30	2022-06-15 16:30	2022-06-15 16:30
Parameter	Unit	G / S	RDL		3985903	3985907	3985908	3985909	3985910	3985911	3985912	3985913
E. Coli (MF)	CFU/100 mL	1	1		171	211	196	203	188	119	109	163

			SAMPLE DESCRIPTION:		FLE-3-4	FLE-3-5	FLS-1-1	FLS-1-2	FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 16:30	2022-06-15 16:30	2022-06-15 18:25	2022-06-15 18:25	2022-06-15 17:50	2022-06-15 17:50	2022-06-15 17:50	2022-06-15 17:50
Parameter	Unit	G / S	RDL		3985914	3985915	3985916	3985917	3985918	3985919	3985920	3985921
E. Coli (MF)	CFU/100 mL	1	1		142	146	26	32	>200	>200	>200	>200

			SAMPLE DESCRIPTION:		FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3	FLW-2-4	FLW-2-5	FLW-3-1	FLW-3-2
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 17:50	2022-06-15 17:30	2022-06-15 17:30	2022-06-15 17:30	2022-06-15 17:30	2022-06-15 17:30	2022-06-15 17:50	2022-06-15 17:50
Parameter	Unit	G / S	RDL		3985922	3985923	3985924	3985925	3985926	3985927	3985928	3985929
E. Coli (MF)	CFU/100 mL	1	1		>200	>200	>200	>200	>200	>200	>200	>200

			SAMPLE DESCRIPTION:		FLW-3-3	FLW-3-4	FLW-3-5	FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 17:50	2022-06-15 17:50	2022-06-15 17:50	2022-06-15 16:30	2022-06-15 16:30	2022-06-15 16:30	2022-06-15 16:30	2022-06-15 16:30
Parameter	Unit	G / S	RDL		3985930	3985931	3985932	3985933	3985934	3985935	3985936	3985937
E. Coli (MF)	CFU/100 mL	1	1		>200	>200	>200	>200	>200	>200	>200	>200

			SAMPLE DESCRIPTION:		FLN-2-1	FLN-2-2	FLN-2-3	FLN-2-4	FLN-2-5	FLN-3-1	FLN-3-2	FLN-3-3
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-06-15 15:05	2022-06-15 15:05	2022-06-15 15:05	2022-06-15 15:05	2022-06-15 15:05	2022-06-15 14:53	2022-06-15 14:53	2022-06-15 14:53
Parameter	Unit	G / S	RDL		3985938	3985939	3985940	3985941	3985942	3985943	3985944	3985945
E. Coli (MF)	CFU/100 mL	1	1		>200	>200	>200	>200	>200	24	32	46

Certified By:

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X908804

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: ANDREW MACINTOSH

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-06-16

DATE REPORTED: 2022-06-20

				SAMPLE DESCRIPTION:	FLN-3-4	FLN-3-5	FLS-1-3	FLS-1-4	FLS-1-5
				SAMPLE TYPE:	Water	Water	Water	Water	Water
				DATE SAMPLED:	2022-06-15 14:53	2022-06-15 14:53	2022-06-15 18:25	2022-06-15 18:25	2022-06-15 18:25
Parameter	Unit	G / S	RDL		3985946	3985947	3985948	3985949	3985950
E. Coli (MF)	CFU/100 mL	1	1		36	36	38	19	29

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2021-03
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: Lara Knox

AGAT Laboratories

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Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X908804

PROJECT: 220804.00

ATTENTION TO: ANDREW MACINTOSH

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

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Dartmouth, NS
B3B 1M2
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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 8.4, 7.4, 4.4
Hold Time:
AGAT Job Number: 22X908804
Notes: '22 JUN 15 9:14AM

Report Information
Company: CBCL
Contact: Michael Brophy
Address:
Phone: Fax:
Client Project #: 220804.00
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Invoice To Same Yes ☒ / No ☐
Company: CBCL
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☒ No **Salt Water Sample** ☐ Yes ☒ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLE-2-1	June 15th 4:15pm	water	1	
FLE-2-2	↓	↓	↓	
FLE-2-3				
FLE-2-4				
FLE-2-5	↓			
FLE-3-1	June 15th 4:30pm			
FLE-3-2	↓			
FLE-3-3				
FLE-3-4				
FLE-3-5	↓			
FLS-1-1	June 15th 6:25pm			
FLS-1-2	↓	↓	↓	

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli AGAT	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Michael Brophy	June 16		
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time
	9:15am		

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Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 4
N°: 73512

Document ID: DIV-133-1502.002
Date revised: May 19, 2016

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Dartmouth, NS
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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 8.4, 7.4, 4.4
Hold Time:
AGAT Job Number: 22X908804
Notes:

'22 JUN 16 9:15AM

Report Information
Company: CBCL
Contact: Michael Brophy
Address:
Phone: Fax:
Client Project #:
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☒ No **Salt Water Sample** ☐ Yes ☒ No
Reg. No.:

Invoice To Same Yes ☐ / No ☐
Company: CBCL
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLW-1-1	June 15th 5:50pm	water	1	
FLW-1-2	↓	↓	↓	
FLW-1-3				
FLW-1-4				
FLW-1-5	↓			
FLW-2-1	June 15th 5:30pm			
FLW-2-2	↓			
FLW-2-3				
~~FLW-2-3~~				
FLW-2-4				
FLW-2-5	↓	↓	↓	

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli: MF	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Michael Brophy	June 16		
Samples Relinquished By (Sign):	**Date/Time**	**Samples Received By (Sign):**	**Date/Time**
	9:15		

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White Copy- AGAT

Page 2 of 4
N°: 73513

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Chain of Custody Record

Laboratory Use Only

Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 8.4, 7.4, 4.4
Hold Time:
AGAT Job Number: 22X908804
Notes:

Report Information

Company: CBCL
Contact: Michael Brophy
Address:
Phone: Fax:
Client Project #: 220804.00
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name:
   Email:
2. Name:
   Email:

Report Format

☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)

YAT JUN16 9:16AM

Regular TAT ☑ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Regulatory Requirements (Check):

☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No Salt Water Sample ☐ Yes ☐ No
Reg. No.:

Invoice To Same Yes ☐ / No ☐

Company:
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC+EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E. coli MF	Other:	Hazardous (Y/N)
FLW-3-1	June 15th 5:50pm	water	1																								
FLW-3-2	↓	↓	↓																								
FLW-3-3																											
FLW-3-4																											
FLW-3-5	↓																										
FLW-6-1	June 15th 4:30pm																										
FLW-6-2	↓																										
FLW-6-3																											
FLW-6-4																											
FLW-6-5	↓																										
FLN-2-1	June 15th 3:05pm																										
FLN-2-2	↓	↓	↓																								

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Michael Brophy	June 16		
Samples Relinquished By (Sign):	**Date/Time**	**Samples Received By (Sign):**	**Date/Time**
Michael Brophy	9:15		

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 3 of 4
N°: 73514

Document ID: DIV 133 1502.002

Date revised: May 19, 2016

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 8.4, 7.4, 4.4
Hold Time:
AGAT Job Number: 22X908804
Notes:

'22 JUN 16 9:15AM

Report Information
Company: CBCL
Contact: Michael Brophy
Address:
Phone: Fax:
Client Project #: 220804.00
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name:
Email:
2. Name:
Email:

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☐ 5 to 7 working days
Rush TAT ☐ Same day ☐ 1 day ☐ 2 days ☐ 3 days
Date Required:

Invoice To Same Yes ☐ / No ☐
Company:
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No **Salt Water Sample** ☐ Yes ☐ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
FLN-2-3	June 15th 3:05pm			
FLN-2-4	↓			
FLN-2-5	↓			
FLN-3-1	↑			
FLN-3-2	June 15th 2:53pm			
FLN-3-3	↓			
FLN-3-4	↓			
FLN-3-5	↓			
FLS-1-3	June 15th 6:25pm			
FLS-1-4	↓			
FLS-1-5	↓			

Field Filtered/Preserved	Standard Water Analysis	Metals: ☐ Total ☐ Diss ☐ Available	Mercury	☐ BOD ☐ CBOD	pH	☐ TSS ☐ TDS ☐ VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) ☐ low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC ☐ P/A ☐ MPN ☐ MF	☐ HPC ☐ Pseudomonas	Fecal Coliform ☐ MPN ☐ MF	Other: E.coli: MF	Other:	Hazardous (Y/N)

Samples Relinquished By (Print Name):	Date/Time	Samples Received By (Print Name):	Date/Time
Michael Brophy	June 16		
Samples Relinquished By (Sign):	**Date/Time**	**Samples Received By (Sign):**	**Date/Time**
	9:15am		

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N°: 73515

Document ID: DIV-133 1502 002
Date revised: May 19, 2016

AGAT Laboratories

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CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804
AGAT WORK ORDER: 22X920735
MICROBIOLOGY ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Jul 19, 2022
PAGES (INCLUDING COVER): 5
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
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- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

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Certificate of Analysis

AGAT WORK ORDER: 22X920735

PROJECT: 220804

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-07-14

DATE REPORTED: 2022-07-19

				SAMPLE DESCRIPTION:	Rocky Lake Inlet 1	Rocky Lake Inlet 2	Rocky Lake Inlet 3	Rocky Lake Inlet 4	Rocky Lake Inlet 5
				SAMPLE TYPE:	Water	Water	Water	Water	Water
				DATE SAMPLED:	2022-07-14 17:10	2022-07-14 17:10	2022-07-14 17:10	2022-07-14 17:10	2022-07-14 17:10
Parameter		Unit	G / S	RDL	4093208	4093209	4093210	4093211	4093212
E. Coli (MF)		CFU/100 mL	1	1	33	24	53	41	39

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2021-03
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: Lara Knox

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Exceedance Summary

AGAT WORK ORDER: 22X920735

PROJECT: 220804

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4093208	Rocky Lake Inlet 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	33
4093209	Rocky Lake Inlet 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	24
4093210	Rocky Lake Inlet 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	53
4093211	Rocky Lake Inlet 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	41
4093212	Rocky Lake Inlet 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39

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Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X920735

PROJECT: 220804

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

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Chain of Custody Record

Laboratory Use Only
Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 25.6, 25.5, 25.5
Hold Time:
AGAT Job Number: 22X920735
Notes: Just sampled

Report Information
Company: CBCL
Contact: Michael Brophy
Address:
Phone: Fax:
Client Project #: 220804
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Report Format
☐ Single Sample per page
☐ Multiple Samples per page
☐ Excel Format Included
☐ Export

Turnaround Time Required (TAT)
Regular TAT ☒ 5 to 7 working days
Rush TAT ☐ Same day ☑ 1 day 22 JUL 14 5:26PM
☐ 2 days ☐ 3 days
Date Required:

Invoice To Same Yes ☐ / No ☐
Company: CBCL
Contact:
Address:
Phone: Fax:
PO/Credit Card#:

Regulatory Requirements (Check):
☐ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube
☐ CCME ☐ CDWQ
☐ Industrial ☐ NSEQS-Cont Sites
☐ Commercial ☐ HRM 101
☐ Res/Park ☐ Storm Water
☐ Agricultural ☐ Waste Water
☐ FWAL
☐ Sediment ☐ Other

Drinking Water Sample: ☐ Yes ☐ No Salt Water Sample ☐ Yes ☐ No
Reg. No.:

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment
Rocky Lake Inlet 1	July 14, 5:10pm	water	1	Sorry will be above 10°C as brought to lab ~20min after sampling
Rocky Lake Inlet 2	↓	↓	↓	
Rocky Lake Inlet 3				
Rocky Lake Inlet 4				
Rocky Lake Inlet 5				

Field Filtered/Preserved | Standard Water Analysis | Metals: ☐ Total ☐ Diss ☐ Available | Mercury | ☐ BOD ☐ CBOD | pH | ☐ TSS ☐ TDS ☐ VSS | TKN | Total Phosphorus | Phenols | Tier 1: TPH/BTEX (PIRI) ☐ low level | Tier 2: TPH/BTEX Fractionation | CCME-CWS TPH/BTEX | VOC | THM | HAA | PAH | PCB | TC + EC ☐ P/A ☐ MPN ☐ MF | ☐ HPC ☐ Pseudomonas | Fecal Coliform ☐ MPN ☐ MF | Other: E. coli | Other | Hazardous (Y/N)

Samples Relinquished By (Print Name)	Date/Time	Samples Received By (Print Name)	Date/Time
Melissa Fraser	July 14		
Samples Relinquished By (Sign):	Date/Time	Samples Received By (Sign):	Date/Time
	5:25pm		

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Page ___ of ___
N°: 73709

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CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804.00
AGAT WORK ORDER: 22X920828
MICROBIOLOGY ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Jul 19, 2022
PAGES (INCLUDING COVER): 22
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

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- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
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- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

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Certificate of Analysis

AGAT WORK ORDER: 22X920828
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: Michael Brophy
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-07-14

DATE REPORTED: 2022-07-19

Parameter	Unit	G / S	RDL	Deep station First Lake (deep) 1	Deep station First Lake (deep) 2	Deep station First Lake (deep) 3	Deep station First Lake (deep) 4	Deep station First Lake (deep) 5	Deep station Rocky Lake (deep) 1	Deep station Rocky Lake (deep) 2	Deep station Rocky Lake (deep) 3
SAMPLE DESCRIPTION:											
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-07-14 07:55	2022-07-14 07:55	2022-07-14 07:55	2022-07-14 07:55	2022-07-14 07:55	2022-07-14 10:46	2022-07-14 10:46	2022-07-14 10:46
				4094491	4094492	4094493	4094494	4094495	4094496	4094497	4094498
E. Coli (MF)	CFU/100 mL	1	1	1	<1	<1	<1	<1	3	<1	2

Parameter	Unit	G / S	RDL	Deep station Rocky Lake (deep) 4	Deep station Rocky Lake (deep) 5	Deep station Second Lake (deep) 1	Deep station Second Lake (deep) 2	Deep station Second Lake (deep) 3	Deep station Second Lake (deep) 4	Deep station Second Lake (deep) 5	Deep station First Lake (shallow) 1
SAMPLE DESCRIPTION:											
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-07-14 10:46	2022-07-14 10:46	2022-07-14 09:25	2022-07-14 09:25	2022-07-14 09:25	2022-07-14 09:25	2022-07-14 09:25	2022-07-14 07:52
				4094499	4094500	4094501	4094502	4094503	4094504	4094505	4094506
E. Coli (MF)	CFU/100 mL	1	1	5	1	22	20	22	13	26	3

Parameter	Unit	G / S	RDL	Deep station First Lake (shallow) 2	Deep station First Lake (shallow) 3	Deep station First Lake (shallow) 4	Deep station First Lake (shallow) 5	Deep station Rocky Lake (shallow) 1	Deep station Rocky Lake (shallow) 2	Deep station Rocky Lake (shallow) 3	Deep station Rocky Lake (shallow) 4
SAMPLE DESCRIPTION:											
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-07-14 07:52	2022-07-14 07:52	2022-07-14 07:52	2022-07-14 07:52	2022-07-14 10:41	2022-07-14 10:41	2022-07-14 10:41	2022-07-14 10:41
				4094507	4094508	4094509	4094510	4094511	4094512	4094513	4094514
E. Coli (MF)	CFU/100 mL	1	1	1	4	2	2	<1	2	2	1

Parameter	Unit	G / S	RDL	Deep station Rocky Lake (shallow) 5	Deep station Second Lake (shallow) 1	Deep station Second Lake (shallow) 2	Deep station Second Lake (shallow) 3	Deep station Second Lake (shallow) 4	Deep station Second Lake (shallow) 5	Gully on Cavalier Drive 1	Gully on Cavalier Drive 2
SAMPLE DESCRIPTION:											
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2022-07-14 10:41	2022-07-14 09:22	2022-07-14 09:22	2022-07-14 09:22	2022-07-14 09:22	2022-07-14 09:22	2022-07-14 15:00	2022-07-14 15:00
				4094515	4094516	4094517	4094518	4094519	4094520	4094521	4094522
E. Coli (MF)	CFU/100 mL	1	1	2	<1	<1	<1	<1	2	33	23

Certified By: Lara Knox

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-07-14

DATE REPORTED: 2022-07-19

				SAMPLE DESCRIPTION:	Gully on Cavalier Drive 3	Gully on Cavalier Drive 4	Gully on Cavalier Drive 5	Inlet of Second Lake 1	Inlet of Second Lake 2	Inlet of Second Lake 3	Inlet of Second Lake 4	Inlet of Second Lake 5
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2022-07-14 15:00	2022-07-14 15:00	2022-07-14 15:00	2022-07-14 14:45	2022-07-14 14:45	2022-07-14 14:45	2022-07-14 14:45	2022-07-14 14:45
Parameter	Unit	G / S	RDL		4094523	4094524	4094525	4094526	4094527	4094528	4094529	4094530
E. Coli (MF)	CFU/100 mL	1	1		22	28	23	15	8	10	13	12

				SAMPLE DESCRIPTION:	Outlet of Second Lake 1	Outlet of Second Lake 2	Outlet of Second Lake 3	Outlet of Second Lake 4	Outlet of Second Lake 5		FLW-1-1	FLW-1-2
				SAMPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
				DATE SAMPLED:	2022-07-14 10:05	2022-07-14 10:05	2022-07-14 10:05	2022-07-14 10:05	2022-07-14 10:05		2022-07-14 11:40	2022-07-14 11:40
Parameter	Unit	G / S	RDL		4094531	4094532	4094533	4094534	4094535	RDL	4094536	4094537
E. Coli (MF)	CFU/100 mL	1	1		23	27	17	11	14	100	>20000	>20000

				SAMPLE DESCRIPTION:	FLW-1-3	FLW-1-4	FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3	FLW-2-4	FLW-2-5
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2022-07-14 11:40	2022-07-14 11:40	2022-07-14 11:40	2022-07-14 11:30	2022-07-14 11:30	2022-07-14 11:30	2022-07-14 11:30	2022-07-14 11:30
Parameter	Unit	G / S	RDL		4094538	4094539	4094540	4094541	4094542	4094543	4094544	4094545
E. Coli (MF)	CFU/100 mL	1	100		>20000	>20000	>20000	>20000	>20000	>20000	>20000	>20000

				SAMPLE DESCRIPTION:	FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5		FLS-2-1	FLS-2-2
				SAMPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
				DATE SAMPLED:	2022-07-14 10:50	2022-07-14 10:50	2022-07-14 10:50	2022-07-14 10:50	2022-07-14 10:50		2022-07-14 13:15	2022-07-14 13:15
Parameter	Unit	G / S	RDL		4094546	4094547	4094548	4094549	4094550	RDL	4094551	4094552
E. Coli (MF)	CFU/100 mL	1	100		900	1300	1500	1300	1300	1	2	3

Certified By: Lara Knox

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FAX (902)468-8924
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Certificate of Analysis

AGAT WORK ORDER: 22X920828
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: Michael Brophy
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-07-14

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		FLS-2-3	FLS-2-4	FLS-2-5		FLS-3-1	FLS-3-2	FLS-3-3	FLS-3-4
		SAMPLE TYPE:		Water	Water	Water		Water	Water	Water	Water
		DATE SAMPLED:		2022-07-14 13:15	2022-07-14 13:15	2022-07-14 13:15		2022-07-14 12:30	2022-07-14 12:30	2022-07-14 12:30	2022-07-14 12:30
Parameter	Unit	G / S	RDL	4094553	4094554	4094555	RDL	4094556	4094557	4094558	4094559
E. Coli (MF)	CFU/100 mL	1	1	6	<1	4	100	12400	11600	15100	14600

		SAMPLE DESCRIPTION:		FLS-3-5	FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4	FLS-4-5	FLN-8-1	FLN-8-2
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-07-14 12:30	2022-07-14 12:50	2022-07-14 12:50	2022-07-14 12:50	2022-07-14 12:50	2022-07-14 12:50	2022-07-14 12:07	2022-07-14 12:07
Parameter	Unit	G / S	RDL	4094560	4094561	4094562	4094563	4094564	4094565	4094566	4094567
E. Coli (MF)	CFU/100 mL	1	100	12000	>20000	>20000	>20000	>20000	>20000	10900	12000

		SAMPLE DESCRIPTION:		FLN-8-3	FLN-8-4	FLN-8-5		FLE-2-1	FLE-2-2	FLE-2-3	FLE-2-4
		SAMPLE TYPE:		Water	Water	Water		Water	Water	Water	Water
		DATE SAMPLED:		2022-07-14 12:07	2022-07-14 12:07	2022-07-14 12:07		2022-07-14 13:20	2022-07-14 13:20	2022-07-14 13:20	2022-07-14 13:20
Parameter	Unit	G / S	RDL	4094568	4094569	4094570	RDL	4094571	4094572	4094573	4094574
E. Coli (MF)	CFU/100 mL	1	100	6600	10000	9900	2	26	28	34	28

		SAMPLE DESCRIPTION:		FLE-2-5	FLE-3-1	FLE-3-2	FLE-3-3	FLE-3-4	FLE-3-5	FLE-5-1	FLE-5-2
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-07-14 13:20	2022-07-14 13:05	2022-07-14 13:05	2022-07-14 13:05	2022-07-14 13:05	2022-07-14 13:05	2022-07-14 13:45	2022-07-14 13:45
Parameter	Unit	G / S	RDL	4094575	4094576	4094577	4094578	4094579	4094580	4094581	4094582
E. Coli (MF)	CFU/100 mL	1	2	22	10	6	12	28	26	120	124

		SAMPLE DESCRIPTION:		FLE-5-3	FLE-5-4	FLE-5-5		FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4
		SAMPLE TYPE:		Water	Water	Water		Water	Water	Water	Water
		DATE SAMPLED:		2022-07-14 13:45	2022-07-14 13:45	2022-07-14 13:45		2022-07-14 08:30	2022-07-14 08:30	2022-07-14 08:30	2022-07-14 08:30
Parameter	Unit	G / S	RDL	4094583	4094584	4094585	RDL	4094586	4094587	4094588	4094589
E. Coli (MF)	CFU/100 mL	1	2	190	122	156	100	800	900	900	700

Certified By: Lara Knox

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-07-14

DATE REPORTED: 2022-07-19

			SAMPLE DESCRIPTION:		FLN-1-5	FLN-2-1	FLN-2-2	FLN-2-3	FLN-2-4	FLN-2-5		FLN-3-1
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water		Water
			DATE SAMPLED:		2022-07-14 08:30	2022-07-14 07:45	2022-07-14 07:45	2022-07-14 07:45	2022-07-14 07:45	2022-07-14 07:45		2022-07-14 08:50
Parameter	Unit	G / S	RDL		4094590	4094591	4094592	4094593	4094594	4094595	RDL	4094596
E. Coli (MF)	CFU/100 mL	1	100		800	13700	14000	15600	15400	14200	1	3

									Unmarked	Unmarked	Unmarked	Unmarked
			SAMPLE DESCRIPTION:		FLN-3-2	FLN-3-3	FLN-3-4	FLN-3-5	Outfall 1	Outfall 2	Outfall 3	Outfall 4
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-07-14 08:50	2022-07-14 08:50	2022-07-14 08:50	2022-07-14 08:50	2022-07-14 09:30	2022-07-14 09:30	2022-07-14 09:30	2022-07-14 09:30
Parameter	Unit	G / S	RDL		4094597	4094598	4094599	4094600	4094601	4094602	4094603	4094604
E. Coli (MF)	CFU/100 mL	1	1		4	2	2	4	<1	<1	<1	<1

					Unmarked							
			SAMPLE DESCRIPTION:		Outfall 5		FLW-3-1	FLW-3-2	FLW-3-3	FLW-3-4	FLW-3-5	
			SAMPLE TYPE:		Water		Water	Water	Water	Water	Water	
			DATE SAMPLED:		2022-07-14 09:30		2022-07-14 11:20	2022-07-14 11:20	2022-07-14 11:20	2022-07-14 11:20	2022-07-14 11:20	
Parameter	Unit	G / S	RDL		4094605	RDL	4094606	4094607	4094608	4094609	4094610	
E. Coli (MF)	CFU/100 mL	1	1		<1	100	4700	5800	6100	5200	5200	

			SAMPLE DESCRIPTION:		FLW-7-1	FLW-7-2	FLW-7-3	FLW-7-4	FLW-7-5		FLW-8-1	FLW-8-2
			SAMPLE TYPE:		Water	Water	Water	Water	Water		Water	Water
			DATE SAMPLED:		2022-07-14 10:25	2022-07-14 10:25	2022-07-14 10:25	2022-07-14 10:25	2022-07-14 10:25		2022-07-14 09:50	2022-07-14 09:50
Parameter	Unit	G / S	RDL		4094611	4094612	4094613	4094614	4094615	RDL	4094616	4094617
E. Coli (MF)	CFU/100 mL	1	2		122	106	122	84	108	100	>20000	>20000

Certified By:

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Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FLW-8-3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 09:50	SAMPLE DESCRIPTION: FLW-8-4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 09:50	SAMPLE DESCRIPTION: FLW-8-5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 09:50	RDL	SAMPLE DESCRIPTION: Outlet of First Lake 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 13:30	SAMPLE DESCRIPTION: Outlet of First Lake 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 13:30	SAMPLE DESCRIPTION: Outlet of First Lake 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 13:30	SAMPLE DESCRIPTION: Outlet of First Lake 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 13:30
				4094618	4094619	4094620		4094621	4094622	4094623	4094624
E. Coli (MF)	CFU/100 mL	1	100	>20000	>20000	>20000	1	14	13	15	12

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Outlet of First Lake 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 13:30	RDL	SAMPLE DESCRIPTION: Kinsmen Beach A / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:20	SAMPLE DESCRIPTION: Kinsmen Beach B / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:20	SAMPLE DESCRIPTION: Kinsmen Beach C / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:20	SAMPLE DESCRIPTION: Kinsmen Beach D / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:20	SAMPLE DESCRIPTION: Kinsmen Beach E / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:20	SAMPLE DESCRIPTION: Inlet of First Lake 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:05
				4094625		4094626	4094627	4094628	4094629	4094630	4094631
E. Coli (MF)	CFU/100 mL	1	1	12	2	84	60	60	90	110	316

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Inlet of First Lake 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:05	SAMPLE DESCRIPTION: Inlet of First Lake 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:05	SAMPLE DESCRIPTION: Inlet of First Lake 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:05	SAMPLE DESCRIPTION: Inlet of First Lake 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-07-14 08:05
				4094632	4094633	4094634	4094635
E. Coli (MF)	CFU/100 mL	1	2	240	370	336	400

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2021-03
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By: Lara Knox

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AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4094496	Deep station Rocky Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4094498	Deep station Rocky Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094499	Deep station Rocky Lake (deep) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4094501	Deep station Second Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4094502	Deep station Second Lake (deep) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	20
4094503	Deep station Second Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4094504	Deep station Second Lake (deep) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	13
4094505	Deep station Second Lake (deep) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	26
4094506	Deep station First Lake (shallow) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4094508	Deep station First Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4094509	Deep station First Lake (shallow) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094510	Deep station First Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094512	Deep station Rocky Lake (shallow) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094513	Deep station Rocky Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094515	Deep station Rocky Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094520	Deep station Second Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094521	Gully on Cavalier Drive 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	33
4094522	Gully on Cavalier Drive 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	23
4094523	Gully on Cavalier Drive 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4094524	Gully on Cavalier Drive 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28
4094525	Gully on Cavalier Drive 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	23
4094526	Inlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	15
4094527	Inlet of Second Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	8
4094528	Inlet of Second Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	10
4094529	Inlet of Second Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	13
4094530	Inlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4094531	Outlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	23
4094532	Outlet of Second Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	27
4094533	Outlet of Second Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	17
4094534	Outlet of Second Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11
4094535	Outlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	14
4094546	FLW-6-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	900
4094547	FLW-6-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1300
4094548	FLW-6-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1500
4094549	FLW-6-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1300
4094550	FLW-6-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1300
4094551	FLS-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094552	FLS-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4094553	FLS-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4094555	FLS-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4094556	FLS-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12400
4094557	FLS-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11600

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AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4094558	FLS-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	15100
4094559	FLS-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	14600
4094560	FLS-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12000
4094566	FLN-8-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	10900
4094567	FLN-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12000
4094568	FLN-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6600
4094569	FLN-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	10000
4094570	FLN-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	9900
4094571	FLE-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	26
4094572	FLE-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28
4094573	FLE-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	34
4094574	FLE-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28
4094575	FLE-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4094576	FLE-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	10
4094577	FLE-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4094578	FLE-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4094579	FLE-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28
4094580	FLE-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	26
4094581	FLE-5-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	120
4094582	FLE-5-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	124
4094583	FLE-5-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	190
4094584	FLE-5-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	122
4094585	FLE-5-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	156
4094586	FLN-1-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	800
4094587	FLN-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	900
4094588	FLN-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	900
4094589	FLN-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	700
4094590	FLN-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	800
4094591	FLN-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	13700
4094592	FLN-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	14000
4094593	FLN-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	15600
4094594	FLN-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	15400
4094595	FLN-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	14200
4094596	FLN-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4094597	FLN-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4094598	FLN-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094599	FLN-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4094600	FLN-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4094606	FLW-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4700
4094607	FLW-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5800
4094608	FLW-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6100
4094609	FLW-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5200
4094610	FLW-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5200

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AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

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ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4094611	FLW-7-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	122
4094612	FLW-7-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	106
4094613	FLW-7-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	122
4094614	FLW-7-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	84
4094615	FLW-7-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	108
4094621	Outlet of First Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	14
4094622	Outlet of First Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	13
4094623	Outlet of First Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	15
4094624	Outlet of First Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4094625	Outlet of First Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4094626	Kinsmen Beach A	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	84
4094627	Kinsmen Beach B	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	60
4094628	Kinsmen Beach C	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	60
4094629	Kinsmen Beach D	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	90
4094630	Kinsmen Beach E	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	110
4094631	Inlet of First Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	316
4094632	Inlet of First Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	240
4094633	Inlet of First Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	370
4094634	Inlet of First Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	336
4094635	Inlet of First Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	400

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Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X920828

PROJECT: 220804.00

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

CHAIN OF CUSTODY RECORD

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Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 5.9, 6.7, 5.1 AGAT Job Number: 22x920828
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
☑ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station First Lake (deep) 1	Jul14 7:55am																										
Deep Station First Lake (deep) 2	↓																										
Deep Station First Lake (deep) 3																											
Deep Station First Lake (deep) 4																											
Deep Station First Lake (deep) 5	↓																										
Deep Station Rocky Lake (deep) 1	Jul14 10:46am																										
Deep Station Rocky Lake (deep) 2	↓																										
Deep Station Rocky Lake (deep) 3																											
Deep Station Rocky Lake (deep) 4																											
Deep Station Rocky Lake (deep) 5	↓																										
Deep Station Second Lake (deep) 1	Jul14 9:25am																										
Deep Station Second Lake (deep) 2	↓																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time Jul4/14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 14:30 16:30	NO:

Page 1 of _____

AGAT Laboratories

59,167,51

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station Second Lake (deep) 3																												
Deep Station Second Lake (deep) 4																												
Deep Station Second Lake (deep) 5																												
Deep Station First Lake (shallow) 1	Jul14 7:52am																											
Deep Station First Lake (shallow) 2																												
Deep Station First Lake (shallow) 3																												
Deep Station First Lake (shallow) 4																												
Deep Station First Lake (shallow) 5																												
Deep Station Rocky Lake (shallow) 1	Jul14 10:41am																											
Deep Station Rocky Lake (shallow) 2																												
Deep Station Rocky Lake (shallow) 3																												
Deep Station Rocky Lake (shallow) 4																												
Deep Station Rocky Lake (shallow) 5																												
Deep Station Second Lake (shallow) 1	Jul14 9:22am																											
Deep Station Second Lake (shallow) 2																												
Deep Station Second Lake (shallow) 3																												
Deep Station Second Lake (shallow) 4																												
Deep Station Second Lake (shallow) 5																												
Gully on Cavalier Drive 1	Jul14 3:00pm																											
Gully on Cavalier Drive 2																												
Gully on Cavalier Drive 3																												
Gully on Cavalier Drive 4																												
Gully on Cavalier Drive 5																												
Inlet of Rocky Lake 1																												
Inlet of Rocky Lake 2																												

Sample Relinquished By (print name)		Date/Time	Samples Received By (print name)	Date/Time Jul 4/14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 2 of
Sample Relinquished By (sign)		Date/Time	Samples Received By (sign)	Date/Time 14:30 16:30		NO:

AGAT Laboratories

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

5.9, 6.7, 5.1

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
~~Inlet of Rocky Lake 3~~																												
~~Inlet of Rocky Lake 4~~																												
~~Inlet of Rocky Lake 5~~																												
Inlet of Second Lake 1	July 2 2:45pm																											
Inlet of Second Lake 2	↓																											
Inlet of Second Lake 3																												
Inlet of Second Lake 4																												
Inlet of Second Lake 5																												
Outlet of Second Lake 1	July 4 10:05am																											
Outlet of Second Lake 2	↓																											
Outlet of Second Lake 3																												
Outlet of Second Lake 4																												
Outlet of Second Lake 5																												

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time
			14:30
			16:30

July 14

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 3 of

NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 4.4, 4.8, 3.7 AGAT Job Number:
Notes: Cooler, ice

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A/O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
☒ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

	SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
1	FLW - 1 - 1	Jul 14 11:40am																									
2	FLW - 1 - 2	"																									
3	FLW - 1 - 3	"																									
4	FLW - 1 - 4	"																									
5	FLW - 1 - 5	↓																									
6	FLW - 2 - 1	Jul 14 11:30am																									
7	FLW - 2 - 2	"																									
8	FLW - 2 - 3	"																									
9	FLW - 2 - 4	"																									
10	FLW - 2 - 5	↓																									
	~~FLW - 4 - 1~~																										
	~~FLW - 4 - 2~~																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time July 14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 16:30	Page 4 of _____ NO:

AGAT Laboratories

4.4, 4.8
3.7

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLW - 4 - 3																										
FLW - 4 - 4																										
FLW - 4 - 5																										
FLW - 5 - 1																										
FLW - 5 - 2																										
FLW - 5 - 3																										
FLW - 5 - 4																										
FLW - 5 - 5																										
FLW - 6 - 1	Jul14 10:50am																									
FLW - 6 - 2	↓																									
FLW - 6 - 3																										
FLW - 6 - 4																										
FLW - 6 - 5	↓																									
FLS - 2 - 1	Jul14 1:15pm																									
FLS - 2 - 2	↓																									
FLS - 2 - 3																										
FLS - 2 - 4																										
FLS - 2 - 5	↓																									
FLS - 3 - 1	Jul14 12:30pm																									
FLS - 3 - 2	↓																									
FLS - 3 - 3																										
FLS - 3 - 4																										
FLS - 3 - 5	↓																									
FLS - 4 - 1	Jul14 12:50pm																									
FLS - 4 - 2	↓																									

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
			July 14
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time
			16:30

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 5 of _____

NO:

AGAT Laboratories

4.4, 4.8
3.7

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#: _____

	SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
1	FLS - 4 - 3																									
2	FLS - 4 - 4																									
3	FLS - 4 - 5																									
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
15																										
16																										
17																										
18																										
19																										
20																										
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time July 14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 6 of _____
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 16:30		NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only

Arrival Condition: ☐ Good ☐ Poor (complete 'notes')

Arrival Temperature: 5.7, 8.2 AGAT Job Number:

Notes: Coolerice 10-7

Drinking Water Sample (y/n): _____ Reg. No.

Waterworks Number:

Report To:

Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle

Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information

1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):

☐ PIRI Site Info (check all that apply):
☐ *Tier 1* ☐ Res. ☐ Pot. ☐ Coarse
☐ *Tier 2* ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ *CDWQ*
☐ *Ind.* ☐ *MAC/IMAC*
☐ *Com* ☐ *A / O*
☐ *Res/p* ☐ *NSDFOSP*
☐ *Ag* ☐ *Other*
☐ *FWAL* _____

Report Format

☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required

Regular TAT:
☑ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci																Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 4 - 1																														
FLN - 4 - 2																														
FLN - 4 - 3																														
FLN - 4 - 4																														
FLN - 4 - 5																														
FLN - 5 - 1																														
FLN - 5 - 2																														
FLN - 5 - 3																														
FLN - 5 - 4																														
FLN - 5 - 5																														
FLN - 6 - 1																														
FLN - 6 - 2																														

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time July 14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 16:30	

Page 7 of _____

NO:

AGAT Laboratories

5.7, 8.2
67

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
~~FLN - 6 - 3~~				
~~FLN - 6 - 4~~				
~~FLN - 6 - 5~~				
~~FLN - 7 - 1~~				
~~FLN - 7 - 2~~				
~~FLN - 7 - 3~~				
~~FLN - 7 - 4~~				
~~FLN - 7 - 5~~				
FLN - 8 - 1	Jul 14 12:07pm			
FLN - 8 - 2	↓			
FLN - 8 - 3				
FLN - 8 - 4				
FLN - 8 - 5				
~~FLE - 1 - 1~~				
~~FLE - 1 - 2~~				
~~FLE - 1 - 3~~				
~~FLE - 1 - 4~~				
~~FLE - 1 - 5~~				
FLE - 2 - 1	Jul 14 1:20pm			
FLE - 2 - 2	↓			
FLE - 2 - 3				
FLE - 2 - 4				
FLE - 2 - 5				
FLE - 3 - 1	Jul 14 1:05pm			
FLE - 3 - 2	↓			

Field Filtered / Preserve	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci													Other:	Other:	Hazardous (Y/N)	Lab Sample #
							↓																	

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time Jul/14
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 16:30

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 8 of _____

NO:

AGAT Laboratories

5.7, 8.2, 6.7

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
FLE - 3 - 3				
FLE - 3 - 4				
FLE - 3 - 5				
~~FLE - 4 - 1~~				
~~FLE - 4 - 2~~				
~~FLE - 4 - 3~~				
~~FLE - 4 - 4~~				
~~FLE - 4 - 5~~				
FLE - 5 - 1	Jul 14 1:45pm			
FLE - 5 - 2				
FLE - 5 - 3				
FLE - 5 - 4				
FLE - 5 - 5				

Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time
			July 14 16:30

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 9 of _____

NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 4.4, 3.8, 6.0 AGAT Job Number:
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: _____ AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
☒ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 1 - 1	Jul 14 8:30am																
FLN - 1 - 2	"																
FLN - 1 - 3	"																
FLN - 1 - 4	"																
FLN - 1 - 5	↓																
FLN - 2 - 1	Jul 14 7:45am																
FLN - 2 - 2	"																
FLN - 2 - 3	"																
FLN - 2 - 4	"																
FLN - 2 - 5	↓																
FLN - 3 - 1	Jul 14 8:50am																
FLN - 3 - 2	↓																

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time Jul 14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 4:30	Page 16 of _____ NO:

AGAT Laboratories

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

4.4, 38.6.0

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 3 - 3																										
FLN - 3 - 4																										
FLN - 3 - 5																										
Unmarked Outfall 1	Jul 14 9:30am																									
Unmarked Outfall 2																										
Unmarked Outfall 3																										
Unmarked Outfall 4																										
Unmarked Outfall 5																										
FLW - 3 - 1	Jul14 11:20am																									
FLW - 3 - 2																										
FLW - 3 - 3																										
FLW - 3 - 4																										
FLW - 3 - 5																										
FLW - 7 - 1	Jul14 10:25am																									
FLW - 7 - 2																										
FLW - 7 - 3																										
FLW - 7 - 4																										
FLW - 7 - 5																										
FLW - 8 - 1	Jul14 9:50am																									
FLW - 8 - 2																										
FLW - 8 - 3																										
FLW - 8 - 4																										
FLW - 8 - 5																										
Outlet of First Lake 1	Jul14 1:30pm																									
Outlet of First Lake 2																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time July 14	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time 16:30	NO:

Page 11 of

AGAT Laboratories

4.4, 38.6.0

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY

Report to:

Company: CBCL

Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
Outlet of First Lake 3	↓											↓														
Outlet of First Lake 4	↓											↓														
Outlet of First Lake 5	↓											↓														
Kinsmen Beach A	Jul 14 8:20am											↓														
Kinsmen Beach B	↓											↓														
Kinsmen Beach C	↓											↓														
Kinsmen Beach D	↓											↓														
Kinsmen Beach E	↓											↓														
Inlet of First Lake 1	Jul 14 8:05am											↓														
Inlet of First Lake 2	↓											↓														
Inlet of First Lake 3	↓											↓														
Inlet of First Lake 4	↓											↓														
Inlet of First Lake 5	↓											↓														

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time July 14	Page 12 of
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign) [signature]	Date/Time 16:30	NO:

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804.00
AGAT WORK ORDER: 22X931131
MICROBIOLOGY ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor
DATE REPORTED: Aug 12, 2022
PAGES (INCLUDING COVER): 18
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
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- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

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Certificate of Analysis

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-10

DATE REPORTED: 2022-08-12

			SAMPLE DESCRIPTION:		FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4	FLN-1-5	FLN-2-1	FLN-2-2	FLN-2-3
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:27	2022-08-10 07:27	2022-08-10 07:27
Parameter	Unit	G / S	RDL		4185154	4185175	4185176	4185177	4185178	4185179	4185180	4185181
E. Coli (MF)	CFU/100 mL	1	100		400	900	600	400	1300	1700	1000	1000

								Unmarked	Unmarked	Unmarked	Unmarked	Unmarked
			SAMPLE DESCRIPTION:		FLN-2-4	FLN-2-5		Outfall 1	Outfall 2	Outfall 3	Outfall 4	Outfall 5
			SAMPLE TYPE:		Water	Water		Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-10 07:27	2022-08-10 07:27		2022-08-10 08:36	2022-08-10 08:36	2022-08-10 08:36	2022-08-10 08:36	2022-08-10 08:36
Parameter	Unit	G / S	RDL		4185182	4185183	RDL	4185184	4185185	4185186	4185187	4185188
E. Coli (MF)	CFU/100 mL	1	100		600	1600	1	<1	<1	<1	<1	2

			SAMPLE DESCRIPTION:		FLW-3-1 Above	FLW-3-2 Above	FLW-3-3 Above	FLW-3-4 Above	FLW-3-5 Above		FLW-7-1	FLW-7-2
			SAMPLE TYPE:		Water	Water	Water	Water	Water		Water	Water
			DATE SAMPLED:		2022-08-10 10:01	2022-08-10 10:01	2022-08-10 10:01	2022-08-10 10:01	2022-08-10 10:01		2022-08-10 09:13	2022-08-10 09:13
Parameter	Unit	G / S	RDL		4185189	4185190	4185191	4185192	4185193	RDL	4185194	4185195
E. Coli (MF)	CFU/100 mL	1	100		2800	1600	2300	2600	2900	2	472	492

			SAMPLE DESCRIPTION:		FLW-7-3	FLW-7-4	FLW-7-5	FLW-8-1	FLW-8-2	FLW-8-3	FLW-8-4	FLW-8-5
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-10 09:13	2022-08-10 09:13	2022-08-10 09:13	2022-08-10 08:57	2022-08-10 08:57	2022-08-10 08:57	2022-08-10 08:57	2022-08-10 08:57
Parameter	Unit	G / S	RDL		4185196	4185197	4185198	4185199	4185200	4185201	4185202	4185203
E. Coli (MF)	CFU/100 mL	1	2		470	458	494	328	246	334	260	376

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				SAMPLE DESCRIPTION:	Inlet of First Lake 1	Inlet of First Lake 2	Inlet of First Lake 3	Inlet of First Lake 4	Inlet of First Lake 5		Outlet of First Lake 1	Outlet of First Lake 2
				SAMPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
				DATE SAMPLED:	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40	2022-08-10 07:40		2022-08-10 11:50	2022-08-10 11:50
Parameter	Unit	G / S	RDL		4185204	4185205	4185206	4185207	4185208	RDL	4185209	4185210
E. Coli (MF)	CFU/100 mL	1	2		192	180	198	152	124	1	7	7

				SAMPLE DESCRIPTION:	Outlet of First Lake 3	Outlet of First Lake 4	Outlet of First Lake 5		FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4
				SAMPLE TYPE:	Water	Water	Water		Water	Water	Water	Water
				DATE SAMPLED:	2022-08-10 11:50	2022-08-10 11:50	2022-08-10 11:50		2022-08-10 10:59	2022-08-10 10:59	2022-08-10 10:59	2022-08-10 10:59
Parameter	Unit	G / S	RDL		4185211	4185212	4185213	RDL	4185214	4185215	4185216	4185217
E. Coli (MF)	CFU/100 mL	1	1		9	5	4	1000	35000	37000	35000	40000

				SAMPLE DESCRIPTION:	FLS-4-5		FLW-3-1 Below	FLW-3-2 Below	FLW-3-3 Below	FLW-3-4 Below	FLW-3-5 Below	
				SAMPLE TYPE:	Water		Water	Water	Water	Water	Water	
				DATE SAMPLED:	2022-08-10 10:59		2022-08-10 09:59	2022-08-10 09:59	2022-08-10 09:59	2022-08-10 09:59	2022-08-10 09:59	
Parameter	Unit	G / S	RDL		4185218	RDL	4185219	4185220	4185221	4185222	4185223	
E. Coli (MF)	CFU/100 mL	1	1000		48000	100	5500	5800	4800	4700	6000	

				SAMPLE DESCRIPTION:	FLN-3-1	FLN-3-2	FLN-3-3	FLN-3-4	FLN-3-5		FLN-8-1	FLN-8-2
				SAMPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
				DATE SAMPLED:	2022-08-10 09:28	2022-08-10 09:28	2022-08-10 09:28	2022-08-10 09:28	2022-08-10 09:28		2022-08-10	2022-08-10
Parameter	Unit	G / S	RDL		4185224	4185225	4185226	4185227	4185228	RDL	4185249	4185250
E. Coli (MF)	CFU/100 mL	1	1		266	274	250	247	317	2	NDOGT	176

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AGAT WORK ORDER: 22X931131
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: Michael Brophy
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-10 DATE REPORTED: 2022-08-12

SAMPLE DESCRIPTION:				FLN-8-3	FLN-8-4	FLN-8-5		FLE-3-1	FLE-3-2	FLE-3-3	FLE-3-4
SAMPLE TYPE:				Water	Water	Water		Water	Water	Water	Water
DATE SAMPLED:				2022-08-10	2022-08-10	2022-08-10		2022-08-10 09:45	2022-08-10 09:45	2022-08-10 09:45	2022-08-10 09:45
Parameter	Unit	G / S	RDL	4185251	4185252	4185253	RDL	4185264	4185265	4185266	4185267
E. Coli (MF)	CFU/100 mL	1	2	102	140	146	1	22	22	12	18

SAMPLE DESCRIPTION:			FLE-3-5		FLE-5-1	FLE-5-2	FLE-5-3	FLE-5-4	FLE-5-5	
SAMPLE TYPE:			Water		Water	Water	Water	Water	Water	
DATE SAMPLED:			2022-08-10 09:45		2022-08-10 10:30	2022-08-10 10:30	2022-08-10 10:30	2022-08-10 10:30	2022-08-10 10:30	
Parameter	Unit	G / S	RDL	4185268	RDL	4185274	4185275	4185276	4185277	4185278	
E. Coli (MF)	CFU/100 mL	1	1	23	2	>400	>400	>400	>400	>400	

SAMPLE DESCRIPTION:				FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4	FLW-1-5		FLW-2-1	FLW-2-2
SAMPLE TYPE:				Water	Water	Water	Water	Water		Water	Water
DATE SAMPLED:				2022-08-10 10:25	2022-08-10 10:25	2022-08-10 10:25	2022-08-10 10:25	2022-08-10 10:25		2022-08-10 10:11	2022-08-10 10:11
Parameter	Unit	G / S	RDL	4185279	4185280	4185281	4185282	4185283	RDL	4185284	4185285
E. Coli (MF)	CFU/100 mL	1	1000	159000	137000	137000	118000	155000	100	28500	24300

SAMPLE DESCRIPTION:				FLW-2-3	FLW-2-4	FLW-2-5		FLW-6-1		FLW-6-2	FLW-6-3
SAMPLE TYPE:				Water	Water	Water		Water		Water	Water
DATE SAMPLED:				2022-08-10 10:11	2022-08-10 10:11	2022-08-10 10:11		2022-08-10 09:20		2022-08-10 09:20	2022-08-10 09:20
Parameter	Unit	G / S	RDL	4185286	4185287	4185288	RDL	4185289	RDL	4185290	4185291
E. Coli (MF)	CFU/100 mL	1	100	24000	23100	27200	1	335	2	472	520

SAMPLE DESCRIPTION:				FLW-6-4	FLW-6-5		FLS-2-1	FLS-2-2	FLS-2-3	FLS-2-4	FLS-2-5
SAMPLE TYPE:				Water	Water		Water	Water	Water	Water	Water
DATE SAMPLED:				2022-08-10 09:20	2022-08-10 09:20		2022-08-10 11:31	2022-08-10 11:31	2022-08-10 11:31	2022-08-10 11:31	2022-08-10 11:31
Parameter	Unit	G / S	RDL	4185292	4185293	RDL	4185306	4185307	4185308	4185309	4185310
E. Coli (MF)	CFU/100 mL	1	2	594	442	1	32	11	10	6	3

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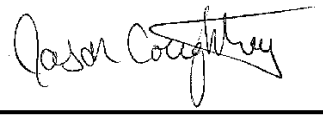

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Certificate of Analysis

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-10

DATE REPORTED: 2022-08-12

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FLS-3-1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-10 11:09 / 4185311	FLS-3-2 / Water / 2022-08-10 11:09 / 4185312	FLS-3-3 / Water / 2022-08-10 11:09 / 4185313	FLS-3-4 / Water / 2022-08-10 11:09 / 4185314	FLS-3-5 / Water / 2022-08-10 11:09 / 4185315	RDL	Inlet of Rocky Lake 3 / Water / 2022-08-10 11:00 / 4185317	Inlet of Rocky Lake 4 / Water / 2022-08-10 11:00 / 4185318
E. Coli (MF)	CFU/100 mL	1	100	5400	5500	3300	5500	5100	1	13	12

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Inlet of Rocky Lake 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-10 11:00 / 4185319	Inlet of Second Lake 1 / Water / 2022-08-10 07:30 / 4185320	Inlet of Second Lake 2 / Water / 2022-08-10 07:30 / 4185321	Inlet of Second Lake 3 / Water / 2022-08-10 07:30 / 4185322	Inlet of Second Lake 4 / Water / 2022-08-10 07:30 / 4185323	Inlet of Second Lake 5 / Water / 2022-08-10 07:30 / 4185324	Outlet of Second Lake 1 / Water / 2022-08-10 11:41 / 4185325	Outlet of Second Lake 2 / Water / 2022-08-10 11:41 / 4185326
E. Coli (MF)	CFU/100 mL	1	1	12	3	1	<1	1	2	39	50

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Outlet of Second Lake 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-10 11:41 / 4185327	Outlet of Second Lake 4 / Water / 2022-08-10 11:41 / 4185328	Outlet of Second Lake 5 / Water / 2022-08-10 11:41 / 4185329	Gully on Cavalier Drive 1 / Water / 2022-08-10 07:58 / 4185330	Gully on Cavalier Drive 2 / Water / 2022-08-10 07:58 / 4185331	Gully on Cavalier Drive 3 / Water / 2022-08-10 07:58 / 4185332	Gully on Cavalier Drive 4 / Water / 2022-08-10 07:58 / 4185333	Gully on Cavalier Drive 5 / Water / 2022-08-10 07:58 / 4185334
E. Coli (MF)	CFU/100 mL	1	1	43	25	44	93	77	108	105	99

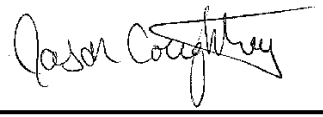
Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Inlet of Rocky 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-10 11:00 / 4185335	Inlet of Rocky 2 / Water / 2022-08-10 11:00 / 4185336
E. Coli (MF)	CFU/100 mL	1	1	20	39

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2022-07
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4185249 No Data: Overgrown with Target

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



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Exceedance Summary

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4185154	FLN-1-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	400
4185175	FLN-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	900
4185176	FLN-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	600
4185177	FLN-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	400
4185178	FLN-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1300
4185179	FLN-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1700
4185180	FLN-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1000
4185181	FLN-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1000
4185182	FLN-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	600
4185183	FLN-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1600
4185188	Unmarked Outfall 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4185189	FLW-3-1 Above	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2800
4185190	FLW-3-2 Above	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1600
4185191	FLW-3-3 Above	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2300
4185192	FLW-3-4 Above	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2600
4185193	FLW-3-5 Above	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2900
4185194	FLW-7-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	472
4185195	FLW-7-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	492
4185196	FLW-7-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	470
4185197	FLW-7-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	458
4185198	FLW-7-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	494
4185199	FLW-8-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	328
4185200	FLW-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	246
4185201	FLW-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	334
4185202	FLW-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	260
4185203	FLW-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	376
4185204	Inlet of First Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	192
4185205	Inlet of First Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	180
4185206	Inlet of First Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	198
4185207	Inlet of First Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	152
4185208	Inlet of First Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	124
4185209	Outlet of First Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7
4185210	Outlet of First Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7
4185211	Outlet of First Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	9
4185212	Outlet of First Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4185213	Outlet of First Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4185214	FLS-4-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	35000
4185215	FLS-4-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	37000
4185216	FLS-4-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	35000
4185217	FLS-4-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	40000
4185218	FLS-4-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	48000
4185219	FLW-3-1 Below	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5500
4185220	FLW-3-2 Below	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5800

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Exceedance Summary

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4185221	FLW-3-3 Below	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4800
4185222	FLW-3-4 Below	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4700
4185223	FLW-3-5 Below	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6000
4185224	FLN-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	266
4185225	FLN-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	274
4185226	FLN-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	250
4185227	FLN-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	247
4185228	FLN-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	317
4185250	FLN-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	176
4185251	FLN-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	102
4185252	FLN-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	140
4185253	FLN-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	146
4185264	FLE-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4185265	FLE-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4185266	FLE-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4185267	FLE-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	18
4185268	FLE-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	23
4185279	FLW-1-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	159000
4185280	FLW-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	137000
4185281	FLW-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	137000
4185282	FLW-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	118000
4185283	FLW-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	155000
4185284	FLW-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28500
4185285	FLW-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	24300
4185286	FLW-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	24000
4185287	FLW-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	23100
4185288	FLW-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	27200
4185289	FLW-6-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	335
4185290	FLW-6-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	472
4185291	FLW-6-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	520
4185292	FLW-6-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	594
4185293	FLW-6-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	442
4185306	FLS-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	32
4185307	FLS-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11
4185308	FLS-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	10
4185309	FLS-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4185310	FLS-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4185311	FLS-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5400
4185312	FLS-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5500
4185313	FLS-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3300
4185314	FLS-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5500
4185315	FLS-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5100
4185317	Inlet of Rocky Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	13

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Exceedance Summary

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4185318	Inlet of Rocky Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4185319	Inlet of Rocky Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4185320	Inlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4185324	Inlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4185325	Outlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39
4185326	Outlet of Second Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	50
4185327	Outlet of Second Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	43
4185328	Outlet of Second Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	25
4185329	Outlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	44
4185330	Gully on Cavalier Drive 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	93
4185331	Gully on Cavalier Drive 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	77
4185332	Gully on Cavalier Drive 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	108
4185333	Gully on Cavalier Drive 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	105
4185334	Gully on Cavalier Drive 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	99
4185335	Inlet of Rocky 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	20
4185336	Inlet of Rocky 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39

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Dartmouth, Nova Scotia
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TEL (902)468-8718
FAX (902)468-8924
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Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X931131

PROJECT: 220804.00

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 8.1, 7.7, 7.1 AGAT Job Number: 22X931131
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
☐ 5 to 7 working days
Rush TAT: '22 AUG 10 1:28 PM
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 1 - 1	Aug10 7:40am																										
FLN - 1 - 2	↓																										
FLN - 1 - 3																											
FLN - 1 - 4																											
FLN - 1 - 5	↓																										
FLN - 2 - 1	7:27am																										
FLN - 2 - 2	↓																										
FLN - 2 - 3																											
FLN - 2 - 4																											
FLN - 2 - 5	↓																										
Unmarked Outfall 1	8:36am																										
Unmarked Outfall 2	↓																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Michael Brophy	Aug10		
Sample Relinquished By (sign)	**Date/Time**	**Samples Received By (sign)**	**Date/Time**
	Aug10		

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White Copy - AGAT

Page 1 of 9
NO:

8.1, 7.7, 7.1 22X931131

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'22 AUG 10 1:29PM

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
Unmarked Outfall 3				
Unmarked Outfall 4				
Unmarked Outfall 5				
FLW - 3 - 1 Above	10:01am			
FLW - 3 - 2 Above				
FLW - 3 - 3 Above				
FLW - 3 - 4 Above				
FLW - 3 - 5 Above				
FLW - 7 - 1	9:13am			
FLW - 7 - 2				
FLW - 7 - 3				
FLW - 7 - 4				
FLW - 7 - 5				
FLW - 8 - 1	8:57am			Previous detection >20 000 CFU/100mL
FLW - 8 - 2				
FLW - 8 - 3				
FLW - 8 - 4				
FLW - 8 - 5				
Inlet of First Lake 1	7:40am			
Inlet of First Lake 2				
Inlet of First Lake 3				
Inlet of First Lake 4				
Inlet of First Lake 5				
Outlet of First Lake 1	11:50am			
Outlet of First Lake 2				

Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign) Maegan	Date/Time

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Page 2 of 9

NO:

87

8,1,7,7,7,1

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22X931131

'22 AUG 10 1:29PM

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	Other:	Other:	Hazardous (Y/N)	Lab Sample #
Outlet of First Lake 3	↓											↓					
Outlet of First Lake 4	↓											↓					
Outlet of First Lake 5	↓											↓					
FLS - 4 - 1	10:59am			Previous detection								↓					
FLS - 4 - 2	↓			720 000 CFU/100mL								↓					
FLS - 4 - 3	↓			↓								↓					
FLS - 4 - 4	↓			↓								↓					
FLS - 4 - 5	↓			↓								↓					
FLW - 3 - 1 Below	9:59am											↓					
FLW - 3 - 2 Below	↓											↓					
FLW - 3 - 3 Below	↓											↓					
FLW - 3 - 4 Below	↓											↓					
FLW - 3 - 5 Below	↓											↓					

50

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 3 of 9
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign) [signature]	Date/Time		NO:

initial COC was submitted wet therefore new copies were submitted the next day.

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 8.8, 9.1, 8.1 AGAT Job Number: 22X931131
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: _____ AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A/O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL

Report Format
☐ Single sample per page
■ Multiple samples per page
■ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
■ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 3 - 1	8/10/2022 9:28																									
FLN - 3 - 2	8/10/2022 9:28																									
FLN - 3 - 3	8/10/2022 9:28																									
FLN - 3 - 4	8/10/2022 9:28																									
FLN - 3 - 5	8/10/2022 9:28																									
~~FLN - 4 - 1~~																										
~~FLN - 4 - 2~~																										
~~FLN - 4 - 3~~																										
~~FLN - 4 - 4~~																										
~~FLN - 4 - 5~~																										
~~FLN - 5 - 1~~																										
~~FLN - 5 - 2~~																										

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) M Glover | Date/Time

Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

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White Copy - AGAT

Page 4 of 9

NO:

initial COC submitted wet therefore new copy submitted next day.

8.8, 9.1, 8.1

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22X931131

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + T	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
~~FLN - 5 - 3~~																											
~~FLN - 5 - 4~~																											
~~FLN - 5 - 5~~																											
~~FLN - 6 - 1~~																											
~~FLN - 6 - 2~~																											
~~FLN - 6 - 3~~																											
~~FLN - 6 - 4~~																											
~~FLN - 6 - 5~~																											
~~FLN - 7 - 1~~																											
~~FLN - 7 - 2~~																											
~~FLN - 7 - 3~~																											
~~FLN - 7 - 4~~																											
~~FLN - 7 - 5~~																											
✓ ~~FLN - 8 - 1~~																											
✓ ~~FLN - 8 - 2~~																											
✓ ~~FLN - 8 - 3~~																											
✓ ~~FLN - 8 - 4~~																											
✓ ~~FLN - 8 - 5~~																											
~~FLE - 1 - 1~~																											
~~FLE - 1 - 2~~																											
~~FLE - 1 - 3~~																											
~~FLE - 1 - 4~~																											
~~FLE - 1 - 5~~																											
~~FLE - 2 - 1~~																											
~~FLE - 2 - 2~~																											

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name) MGluver	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 5 of 9
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

initial COC submitted
Not therefore new
copy submitted
next day

8.8,9.1,8.1

22X931131

AGAT Laboratories
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Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + T	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
~~FLE - 2 - 3~~																											
~~FLE - 2 - 4~~																											
~~FLE - 2 - 5~~																											
FLE - 3 - 1	8/10/2022 9:45																										
FLE - 3 - 2	8/10/2022 9:45																										
FLE - 3 - 3	8/10/2022 9:45																										
FLE - 3 - 4	8/10/2022 9:45																										
FLE - 3 - 5	8/10/2022 9:45																										
~~FLE - 4 - 1~~																											
~~FLE - 4 - 2~~																											
~~FLE - 4 - 3~~																											
~~FLE - 4 - 4~~																											
~~FLE - 4 - 5~~																											
FLE - 5 - 1	8/10/2022 10:30																										
FLE - 5 - 2	8/10/2022 10:30																										
FLE - 5 - 3	8/10/2022 10:30																										
FLE - 5 - 4	8/10/2022 10:30																										
FLE - 5 - 5	8/10/2022 10:30																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name) MGlover	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 6 of 9
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 8.8, 6.2, 7.7 AGAT Job Number: 22X931131
Notes:

Drinking Water Sample (y/n): _____ Reg. No. _____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format
☐ Single sample per page
■ Multiple samples per page
■ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
■ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours '22 AUG 10 1:28PM
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLW - 1 - 1 Anglo	10:25am			previous sampling													
FLW - 1 - 2	↓			round detected E.coli in													
FLW - 1 - 3				exceedance of 720 000 CFU/100mL													
FLW - 1 - 4				↓													
FLW - 1 - 5	↓																
FLW - 2 - 1	10:11am																
FLW - 2 - 2	↓																
FLW - 2 - 3																	
FLW - 2 - 4																,	
FLW - 2 - 5	↓																
~~FLW - 4 - 1~~																	
~~FLW - 4 - 2~~																	

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Michael Brophy	Anglo		
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time
	Aug 10		

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Yellow Copy - AGAT
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Page 7 of 9
NO:

8.8 6 2, 7.7

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22X931131

'22 AUG 10 1:28PM

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
FLW - 4 - 3				
FLW - 4 - 4				
FLW - 4 - 5				
FLW - 5 - 1				
FLW - 5 - 2				
FLW - 5 - 3				
FLW - 5 - 4				
FLW - 5 - 5				
FLW - 6 - 1	9:28am			
FLW - 6 - 2	↓			
FLW - 6 - 3				
FLW - 6 - 4				
FLW - 6 - 5	↓			
FLS - 2 - 1	11:31am			
FLS - 2 - 2	↓			
FLS - 2 - 3				
FLS - 2 - 4				
FLS - 2 - 5	↓			
FLS - 3 - 1	11:09am			
FLS - 3 - 2	↓			
FLS - 3 - 3				
FLS - 3 - 4				
FLS - 3 - 5	↓			

Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
							↓															

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign) Maryann Brown	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 8 of 89

NO:

88, 9.1, 8.1

AGAT Laboratories
Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22X931131

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
Inlet of Rocky Lake 3	11:00am			
Inlet of Rocky Lake 4	↓			
Inlet of Rocky Lake 5	↓			
Inlet of Second Lake 1	7:30am			
Inlet of Second Lake 2	↓			
Inlet of Second Lake 3	↓			
Inlet of Second Lake 4	↓			
Inlet of Second Lake 5	↓			
Outlet of Second Lake 1	11:41am			
Outlet of Second Lake 2	↓			
Outlet of Second Lake 3	↓			
Outlet of Second Lake 4	↓			
Outlet of Second Lake 5	↓			
Gully on Cavalier Drive 1	7:58am			
Gully on Cavalier Drive 2	↓			
Gully on Cavalier Drive 3	↓			
Gully on Cavalier Drive 4	↓			
Gully on Cavalier Drive 5	↓			
Inlet of Rocky 1	11:00am			
Inlet of Rocky 2	↓			

Field Filtered / Preserved | Standard Water Analysis + | TKN | TP | SRP | Chlorophyll A | TSS | E.Coli | Enterococci | Other: | Other: | Hazardous (Y/N) | Lab Sample #

122 DEC 10 1:32PM

Sample Relinquished By (print name)	M Brophy	Date/Time Aug 10	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT
Sample Relinquished By (sign)		Date/Time Aug 10	Samples Received By (sign)	Date/Time	NO:

Page 94 of 49

150
120

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804.00
AGAT WORK ORDER: 22X931314
MICROBIOLOGY ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor
DATE REPORTED: Aug 12, 2022
PAGES (INCLUDING COVER): 7
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
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- The test results reported herewith relate only to the samples as received by the laboratory.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 22X931314
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: Michael Brophy
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-10

DATE REPORTED: 2022-08-12

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Deep Station First Lake (deep) 1	Deep Station First Lake (deep) 2	Deep Station First Lake (deep) 3	Deep Station First Lake (deep) 4	Deep Station First Lake (deep) 5	Deep Station Rocky Lake (deep) 1	Deep Station Rocky Lake (deep) 2	Deep Station Rocky Lake (deep) 3
				SAMPLE TYPE: Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED: 2022-08-10 13:27	2022-08-10 13:27	2022-08-10 13:27	2022-08-10 13:27	2022-08-10 13:27	2022-08-10 14:24	2022-08-10 14:24	2022-08-10 14:24
				4186956	4186958	4186959	4186960	4186961	4186962	4186963	4186964
E. Coli (MF)	CFU/100 mL	1	1	9	6	3	7	4	5	1	4

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Deep Station Rocky Lake (deep) 4	Deep Station Rocky Lake (deep) 5	Deep Station Second Lake (deep) 1	Deep Station Second Lake (deep) 2	Deep Station Second Lake (deep) 3	Deep Station Second Lake (deep) 4	Deep Station Second Lake (deep) 5	Deep Station First Lake (shallow) 1
				SAMPLE TYPE: Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED: 2022-08-10 14:24	2022-08-10 14:24	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 13:27
				4186965	4186966	4186967	4186968	4186969	4186970	4186971	4186972
E. Coli (MF)	CFU/100 mL	1	1	4	2	<1	1	2	<1	<1	5

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Deep Station First Lake (shallow) 2	Deep Station First Lake (shallow) 3	Deep Station First Lake (shallow) 4	Deep Station First Lake (shallow) 5	Deep Station Rocky Lake (shallow) 1	Deep Station Rocky Lake (shallow) 2	Deep Station Rocky Lake (shallow) 3	Deep Station Rocky Lake (shallow) 4
				SAMPLE TYPE: Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED: 2022-08-10 13:27	2022-08-10 13:27	2022-08-10 13:27	2022-08-10 13:27	2022-08-10 14:24	2022-08-10 14:24	2022-08-10 14:24	2022-08-10 14:24
				4186973	4186974	4186975	4186976	4186977	4186978	4186979	4186980
E. Coli (MF)	CFU/100 mL	1	1	3	4	5	5	2	1	4	2

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Deep Station Rocky Lake (shallow) 5	Deep Station Second Lake (shallow) 1	Deep Station Second Lake (shallow) 2	Deep Station Second Lake (shallow) 3	Deep Station Second Lake (shallow) 4	Deep Station Second Lake (shallow) 5	Kinsmen Beach A
				SAMPLE TYPE: Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED: 2022-08-10 14:24	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 15:26	2022-08-10 13:20
				4186981	4186982	4186983	4186984	4186985	4186986	4186987
E. Coli (MF)	CFU/100 mL	1	1	5	<1	1	2	<1	<1	292

Certified By:

AGAT Laboratories

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TEL (902)468-8718
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Certificate of Analysis

AGAT WORK ORDER: 22X931314

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-10

DATE REPORTED: 2022-08-12

				Kinsmen Beach	Kinsmen Beach	Kinsmen Beach	Kinsmen Beach
SAMPLE DESCRIPTION:				B	C	D	E
SAMPLE TYPE:				Water	Water	Water	Water
DATE SAMPLED:				2022-08-10 13:20	2022-08-10 13:20	2022-08-10 13:20	2022-08-10 13:20
Parameter	Unit	G / S	RDL	4186988	4186989	4186990	4186991
E. Coli (MF)	CFU/100 mL	1	2	256	276	>400	308

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2022-07
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

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FAX (902)468-8924
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Exceedance Summary

AGAT WORK ORDER: 22X931314

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4186956	Deep Station First Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	9
4186958	Deep Station First Lake (deep) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4186959	Deep Station First Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4186960	Deep Station First Lake (deep) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7
4186961	Deep Station First Lake (deep) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4186962	Deep Station Rocky Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4186964	Deep Station Rocky Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4186965	Deep Station Rocky Lake (deep) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4186966	Deep Station Rocky Lake (deep) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4186969	Deep Station Second Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4186972	Deep Station First Lake (shallow) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4186973	Deep Station First Lake (shallow) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4186974	Deep Station First Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4186975	Deep Station First Lake (shallow) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4186976	Deep Station First Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4186977	Deep Station Rocky Lake (shallow) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4186979	Deep Station Rocky Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4186980	Deep Station Rocky Lake (shallow) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4186981	Deep Station Rocky Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4186984	Deep Station Second Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4186987	Kinsmen Beach A	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	292
4186988	Kinsmen Beach B	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	256
4186989	Kinsmen Beach C	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	276
4186991	Kinsmen Beach E	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	308

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Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X931314

PROJECT: 220804.00

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only

Arrival Condition: ☐ Good ☐ Poor (complete 'notes') MB
Arrival Temperature: 14.4, 21.2, 24.7 AGAT Job Number: ~~22x930~~ L22x931314
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____

Waterworks Number:

Report To:

Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle

Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information

1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):

☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A/O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format

☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required

Regular TAT:
☑ 5 to 7 working days '22AUG10 4:2 PM
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station First Lake (deep) 1	13:27																
Deep Station First Lake (deep) 2	↓																
Deep Station First Lake (deep) 3																	
Deep Station First Lake (deep) 4																	
Deep Station First Lake (deep) 5	↓																
Deep Station Rocky Lake (deep) 1	14:24																
Deep Station Rocky Lake (deep) 2	↓																
Deep Station Rocky Lake (deep) 3																	
Deep Station Rocky Lake (deep) 4																	
Deep Station Rocky Lake (deep) 5	↓																
Deep Station Second Lake (deep) 1	15:20																
Deep Station Second Lake (deep) 2	↓																

MF (D)

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Melissa Fraser	4:16pm		
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time

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Page 1 of 2

NO:

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http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
Deep Station Second Lake (deep) 3	15:26			
Deep Station Second Lake (deep) 4	↓			
Deep Station Second Lake (deep) 5	↓			
Deep Station First Lake (shallow) 1	13:27			
Deep Station First Lake (shallow) 2	↓			
Deep Station First Lake (shallow) 3	↓			
Deep Station First Lake (shallow) 4	↓			
Deep Station First Lake (shallow) 5	↓			
Deep Station Rocky Lake (shallow) 1	14:24			
Deep Station Rocky Lake (shallow) 2	↓			
Deep Station Rocky Lake (shallow) 3	↓			
Deep Station Rocky Lake (shallow) 4	↓			
Deep Station Rocky Lake (shallow) 5	↓			
Deep Station Second Lake (shallow) 1	15:26			
Deep Station Second Lake (shallow) 2	↓			
Deep Station Second Lake (shallow) 3	↓			
Deep Station Second Lake (shallow) 4	↓			
Deep Station Second Lake (shallow) 5	↓			
Kinsmen Beach	13:20			
Kinsmen Beach	↓			
Kinsmen Beach	↓			
Kinsmen Beach	↓			
Kinsmen Beach	↓			
Inlet of Rocky Lake 1				
Inlet of Rocky Lake 2				

Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli MF	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
							↓																

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 2 of 2

NO:

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TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

CLIENT NAME: CBCL LTD
1505 BARRINGTON STREET, SUITE 901
HALIFAX, NS B3J 2R7
(902) 421-7241
ATTENTION TO: Michael Brophy
PROJECT: 220804.00
AGAT WORK ORDER: 22X934525
MICROBIOLOGY ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor
DATE REPORTED: Aug 29, 2022
PAGES (INCLUDING COVER): 21
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (902) 468-8718

*Notes

Disclaimer:

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- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

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TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X934525
PROJECT: 220804.00

CLIENT NAME: CBCL LTD
SAMPLING SITE:

ATTENTION TO: Michael Brophy
SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-18 DATE REPORTED: 2022-08-29

			SAMPLE DESCRIPTION:		FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4	FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3
			SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-18 10:00	2022-08-18 10:00	2022-08-18 10:00	2022-08-18 10:00	2022-08-18 10:00	2022-08-18 09:55	2022-08-18 09:55	2022-08-18 09:55
Parameter	Unit	G / S	RDL	4215824	4215826	4215827	4215828	4215829	4215830	4215831	4215832
E. Coli (MF)	CFU/100 mL	1	1000	31000	29000	25000	26000	24000	22000	5000	11000

			SAMPLE DESCRIPTION:		FLW-2-4	FLW-2-5		FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5
			SAMPLE TYPE:		Water	Water		Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-18 09:55	2022-08-18 09:55		2022-08-18 09:20	2022-08-18 09:20	2022-08-18 09:20	2022-08-18 09:20	2022-08-18 09:20
Parameter	Unit	G / S	RDL	4215833	4215834	RDL	4215835	4215836	4215837	4215838	4215839
E. Coli (MF)	CFU/100 mL	1	1000	11000	5000	100	8300	8400	7100	7400	7900

			SAMPLE DESCRIPTION:		FLS-2-1	FLS-2-2	FLS-2-3	FLS-2-4	FLS-2-5		FLS-3-1	FLS-3-2
			SAMPLE TYPE:		Water	Water	Water	Water	Water		Water	Water
			DATE SAMPLED:		2022-08-18 10:50	2022-08-18 10:50	2022-08-18 10:50	2022-08-18 10:50	2022-08-18 10:50		2022-08-18 10:25	2022-08-18 10:25
Parameter	Unit	G / S	RDL	4215840	4215841	4215842	4215843	4215850	RDL	4215855	4215856
E. Coli (MF)	CFU/100 mL	1	1	26	12	16	11	20	2	258	304

			SAMPLE DESCRIPTION:		FLS-3-3	FLS-3-4	FLS-3-5		FLN-3-1		FLN-3-2	FLN-3-3
			SAMPLE TYPE:		Water	Water	Water		Water		Water	Water
			DATE SAMPLED:		2022-08-18 10:25	2022-08-18 10:25	2022-08-18 10:25		2022-08-18 11:20		2022-08-18 11:20	2022-08-18 11:20
Parameter	Unit	G / S	RDL	4215857	4215858	4215859	RDL	4215860	RDL	4215861	4215862
E. Coli (MF)	CFU/100 mL	1	2	238	270	260	1	291	2	310	264

			SAMPLE DESCRIPTION:		FLN-3-4	FLN-3-5		FLN-4-1	FLN-4-2	FLN-4-3	FLN-4-4	FLN-4-5
			SAMPLE TYPE:		Water	Water		Water	Water	Water	Water	Water
			DATE SAMPLED:		2022-08-18 11:20	2022-08-18 11:20		2022-08-18 10:46	2022-08-18 10:46	2022-08-18 10:46	2022-08-18 10:46	2022-08-18 10:46
Parameter	Unit	G / S	RDL	4215863	4215864	RDL	4215865	4215866	4215867	4215868	4215869
E. Coli (MF)	CFU/100 mL	1	2	300	312	100	1100	600	1200	500	1200

Certified By:

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
CANADA B3B 1M2
TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 22X934525

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-18

DATE REPORTED: 2022-08-29

		SAMPLE DESCRIPTION:		FLN-8-1	FLN-8-2	FLN-8-3	FLN-8-4	FLN-8-5		FLE-3-1	FLE-3-2
		SAMPLE TYPE:		Water	Water	Water	Water	Water		Water	Water
		DATE SAMPLED:		2022-08-18 11:05	2022-08-18 11:05	2022-08-18 11:05	2022-08-18 11:05	2022-08-18 11:05		2022-08-18 12:15	2022-08-18 12:15
Parameter	Unit	G / S	RDL	4215870	4215871	4215872	4215873	4215874	RDL	4215875	4215876
E. Coli (MF)	CFU/100 mL	1	2	466	494	604	440	592	1	>200	>200

		SAMPLE DESCRIPTION:		FLE-3-3	FLE-3-4	FLE-3-5		FLE-5-1	FLE-5-2	FLE-5-3	FLE-5-4
		SAMPLE TYPE:		Water	Water	Water		Water	Water	Water	Water
		DATE SAMPLED:		2022-08-18 12:15	2022-08-18 12:15	2022-08-18 12:15		2022-08-18 12:40	2022-08-18 12:40	2022-08-18 12:40	2022-08-18 12:40
Parameter	Unit	G / S	RDL	4215877	4215878	4215879	RDL	4215880	4215881	4215882	4215883
E. Coli (MF)	CFU/100 mL	1	1	>200	>200	>200	2	246	240	256	264

		SAMPLE DESCRIPTION:		FLE-5-5		Deep Station First Lake (deep) 1	Deep Station First Lake (deep) 2	Deep Station First Lake (deep) 3	Deep Station First Lake (deep) 4	Deep Station First Lake (deep) 5	Deep Station Rocky Lake (deep) 1
		SAMPLE TYPE:		Water		Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-08-18 12:40		2022-08-18 07:30	2022-08-18 07:30	2022-08-18 07:30	2022-08-18 07:30	2022-08-18 07:30	2022-08-18 09:20
Parameter	Unit	G / S	RDL	4215884	RDL	4215885	4215886	4215887	4215888	4215889	4215890
E. Coli (MF)	CFU/100 mL	1	2	280	1	40	29	22	28	25	2

		SAMPLE DESCRIPTION:		Deep Station Rocky Lake (deep) 2	Deep Station Rocky Lake (deep) 3	Deep Station Rocky Lake (deep) 4	Deep Station Rocky Lake (deep) 5	Deep Station Second Lake (deep) 1	Deep Station Second Lake (deep) 2	Deep Station Second Lake (deep) 3	Deep Station Second Lake (deep) 4
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-08-18 09:20	2022-08-18 09:20	2022-08-18 09:20	2022-08-18 09:20	2022-08-18 08:30	2022-08-18 08:30	2022-08-18 08:30	2022-08-18 08:30
Parameter	Unit	G / S	RDL	4215891	4215892	4215893	4215894	4215895	4215896	4215897	4215898
E. Coli (MF)	CFU/100 mL	1	1	<1	6	1	3	2	<1	2	<1

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Parameter	Unit	G / S	RDL	Deep Station Second Lake (deep) 5 Water 2022-08-18 08:30 4215899	Deep Station First Lake (shallow) 1 Water 2022-08-18 07:30 4215900	Deep Station First Lake (shallow) 2 Water 2022-08-18 07:30 4215901	Deep Station First Lake (shallow) 3 Water 2022-08-18 07:30 4215902	Deep Station First Lake (shallow) 4 Water 2022-08-18 07:30 4215903	Deep Station First Lake (shallow) 5 Water 2022-08-18 07:30 4215904	Deep Station Rocky Lake (shallow) 1 Water 2022-08-18 09:30 4215905	Deep Station Rocky Lake (shallow) 2 Water 2022-08-18 09:30 4215906
SAMPLE DESCRIPTION:											
SAMPLE TYPE:											
DATE SAMPLED:											
E. Coli (MF)	CFU/100 mL	1	1	<1	2	3	3	3	5	6	6

Parameter	Unit	G / S	RDL	Deep Station Rocky Lake (shallow) 3 Water 2022-08-18 09:30 4215907	Deep Station Rocky Lake (shallow) 4 Water 2022-08-18 09:30 4215908	Deep Station Rocky Lake (shallow) 5 Water 2022-08-18 09:30 4215909	Deep Station Second Lake (shallow) 1 Water 2022-08-18 08:30 4215910	Deep Station Second Lake (shallow) 2 Water 2022-08-18 08:30 4215911	Deep Station Second Lake (shallow) 3 Water 2022-08-18 08:30 4215912	Deep Station Second Lake (shallow) 4 Water 2022-08-18 08:30 4215913	Deep Station Second Lake (shallow) 5 Water 2022-08-18 08:30 4215914
SAMPLE DESCRIPTION:											
SAMPLE TYPE:											
DATE SAMPLED:											
E. Coli (MF)	CFU/100 mL	1	1	4	4	4	<1	2	1	1	1

Parameter	Unit	G / S	RDL	Kinsmen Beach A Water 2022-08-18 07:15 4215915	Kinsmen Beach B Water 2022-08-18 07:15 4215916	Kinsmen Beach C Water 2022-08-18 07:15 4215917	Kinsmen Beach D Water 2022-08-18 07:15 4215918	Kinsmen Beach E Water 2022-08-18 07:15 4215919	RDL	Inlet of Rocky Lake 1 Water 2022-08-18 13:30 4215920	Inlet of Rocky Lake 2 Water 2022-08-18 13:30 4215921
SAMPLE DESCRIPTION:											
SAMPLE TYPE:											
DATE SAMPLED:											
E. Coli (MF)	CFU/100 mL	1	2	100	90	86	178	106	1	6	5

Parameter	Unit	G / S	RDL	Inlet of Rocky Lake 3 Water 2022-08-18 13:30 4215922	Inlet of Rocky Lake 4 Water 2022-08-18 13:30 4215923	Inlet of Rocky Lake 5 Water 2022-08-18 13:30 4215924	Inlet of Second Lake 1 Water 2022-08-18 12:20 4215925	Inlet of Second Lake 2 Water 2022-08-18 12:20 4215926	Inlet of Second Lake 3 Water 2022-08-18 12:20 4215927	Inlet of Second Lake 4 Water 2022-08-18 12:20 4215928	Inlet of Second Lake 5 Water 2022-08-18 12:20 4215929
SAMPLE DESCRIPTION:											
SAMPLE TYPE:											
DATE SAMPLED:											
E. Coli (MF)	CFU/100 mL	1	1	4	7	4	5	6	5	3	4

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Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Outlet of Second Lake 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:45 / 4215930	SAMPLE DESCRIPTION: Outlet of Second Lake 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:45 / 4215931	SAMPLE DESCRIPTION: Outlet of Second Lake 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:45 / 4215932	SAMPLE DESCRIPTION: Outlet of Second Lake 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:45 / 4215933	SAMPLE DESCRIPTION: Outlet of Second Lake 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:45 / 4215934	RDL	SAMPLE DESCRIPTION: Gully on Cavalier Drive 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 12:40 / 4215944	SAMPLE DESCRIPTION: Gully on Cavalier Drive 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 12:40 / 4215945
E. Coli (MF)	CFU/100 mL	1	1	27	39	34	25	24	100	2100	2800

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Gully on Cavalier Drive 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 12:40 / 4215946	SAMPLE DESCRIPTION: Gully on Cavalier Drive 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 12:40 / 4215947	SAMPLE DESCRIPTION: Gully on Cavalier Drive 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 12:40 / 4215948	SAMPLE DESCRIPTION: FLN-1-1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00 / 4215949	SAMPLE DESCRIPTION: FLN-1-2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00 / 4215950	SAMPLE DESCRIPTION: FLN-1-3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00 / 4215951	SAMPLE DESCRIPTION: FLN-1-4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00 / 4215952	SAMPLE DESCRIPTION: FLN-1-5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00 / 4215953
E. Coli (MF)	CFU/100 mL	1	100	2400	1900	1900	2800	2600	2300	3200	2000

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FLN-2-1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 07:20 / 4215954	SAMPLE DESCRIPTION: FLN-2-2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 07:20 / 4215955	SAMPLE DESCRIPTION: FLN-2-3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 07:20 / 4215956	SAMPLE DESCRIPTION: FLN-2-4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 07:20 / 4215957	SAMPLE DESCRIPTION: FLN-2-5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 07:20 / 4215958	RDL	SAMPLE DESCRIPTION: Unmarked Outfall 1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:35 / 4215959	SAMPLE DESCRIPTION: Unmarked Outfall 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:35 / 4215960
E. Coli (MF)	CFU/100 mL	1	100	6300	5800	5600	3900	5700	1	3	3

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Unmarked Outfall 3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:35 / 4215961	SAMPLE DESCRIPTION: Unmarked Outfall 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:35 / 4215962	SAMPLE DESCRIPTION: Unmarked Outfall 5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:35 / 4215963	RDL	SAMPLE DESCRIPTION: FLW-7-1 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:00 / 4215964	SAMPLE DESCRIPTION: FLW-7-2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:00 / 4215965	SAMPLE DESCRIPTION: FLW-7-3 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:00 / 4215966	SAMPLE DESCRIPTION: FLW-7-4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:00 / 4215967
E. Coli (MF)	CFU/100 mL	1	1	11	2	2	100	3900	2800	2500	2200

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E.coli Membrane Filtration

DATE RECEIVED: 2022-08-18

DATE REPORTED: 2022-08-29

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FLW-7-5 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:00	FLW-8-1 Water 2022-08-18 08:50	FLW-8-2 Water 2022-08-18 08:50	FLW-8-3 Water 2022-08-18 08:50	FLW-8-4 Water 2022-08-18 08:50	FLW-8-5 Water 2022-08-18 08:50	RDL	Inlet of First Lake 1 Water 2022-08-18 08:00
				4215968	4215969	4215970	4215971	4215972	4215973		4215974
E. Coli (MF)	CFU/100 mL	1	100	2100	4100	3000	3500	3200	3800	2	>400

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Inlet of First Lake 2 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 08:00	Inlet of First Lake 3 Water 2022-08-18 08:00	Inlet of First Lake 4 Water 2022-08-18 08:00	Inlet of First Lake 5 Water 2022-08-18 08:00	RDL	Outlet of First Lake 1 Water 2022-08-18 11:00	Outlet of First Lake 2 Water 2022-08-18 11:00	Outlet of First Lake 3 Water 2022-08-18 11:00
				4215975	4215976	4215977	4215978		4215979	4215980	4215981
E. Coli (MF)	CFU/100 mL	1	2	>400	>400	>400	>400	1	169	196	216

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: Outlet of First Lake 4 / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 11:00	Outlet of First Lake 5 Water 2022-08-18 11:00	RDL	FLS-4-1 Water 2022-08-18 10:15	FLS-4-2 Water 2022-08-18 10:15	FLS-4-3 Water 2022-08-18 10:15	FLS-4-4 Water 2022-08-18 10:15	FLS-4-5 Water 2022-08-18 10:15
				4215982	4215983		4215984	4215985	4215986	4215987	4215988
E. Coli (MF)	CFU/100 mL	1	1	160	178	1000	42000	39000	39000	40000	40000

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION: FLW-3-1 After / SAMPLE TYPE: Water / DATE SAMPLED: 2022-08-18 09:45	FLW-3-2 After Water 2022-08-18 09:45	FLW-3-3 After Water 2022-08-18 09:45	FLW-3-4 After Water 2022-08-18 09:45	FLW-3-5 After Water 2022-08-18 09:45
				4215989	4215990	4215991	4215992	4215993
E. Coli (MF)	CFU/100 mL	1	100	>20000	>20000	>20000	>20000	>20000

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2022-07
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Halifax (unless marked by *)

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SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4215824	FLW-1-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	31000
4215826	FLW-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	29000
4215827	FLW-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	25000
4215828	FLW-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	26000
4215829	FLW-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	24000
4215830	FLW-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22000
4215831	FLW-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5000
4215832	FLW-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11000
4215833	FLW-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11000
4215834	FLW-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5000
4215835	FLW-6-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	8300
4215836	FLW-6-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	8400
4215837	FLW-6-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7100
4215838	FLW-6-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7400
4215839	FLW-6-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7900
4215840	FLS-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	26
4215841	FLS-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	12
4215842	FLS-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	16
4215843	FLS-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11
4215850	FLS-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	20
4215855	FLS-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	258
4215856	FLS-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	304
4215857	FLS-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	238
4215858	FLS-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	270
4215859	FLS-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	260
4215860	FLN-3-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	291
4215861	FLN-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	310
4215862	FLN-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	264
4215863	FLN-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	300
4215864	FLN-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	312
4215865	FLN-4-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1100
4215866	FLN-4-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	600
4215867	FLN-4-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1200
4215868	FLN-4-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	500
4215869	FLN-4-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1200
4215870	FLN-8-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	466
4215871	FLN-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	494
4215872	FLN-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	604
4215873	FLN-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	440
4215874	FLN-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	592
4215880	FLE-5-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	246
4215881	FLE-5-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	240
4215882	FLE-5-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	256

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SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4215883	FLE-5-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	264
4215884	FLE-5-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	280
4215885	Deep Station First Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	40
4215886	Deep Station First Lake (deep) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	29
4215887	Deep Station First Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	22
4215888	Deep Station First Lake (deep) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	28
4215889	Deep Station First Lake (deep) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	25
4215890	Deep Station Rocky Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215892	Deep Station Rocky Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4215894	Deep Station Rocky Lake (deep) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215895	Deep Station Second Lake (deep) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215897	Deep Station Second Lake (deep) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215900	Deep Station First Lake (shallow) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215901	Deep Station First Lake (shallow) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215902	Deep Station First Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215903	Deep Station First Lake (shallow) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215904	Deep Station First Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4215905	Deep Station Rocky Lake (shallow) 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4215906	Deep Station Rocky Lake (shallow) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4215907	Deep Station Rocky Lake (shallow) 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215908	Deep Station Rocky Lake (shallow) 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215909	Deep Station Rocky Lake (shallow) 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215911	Deep Station Second Lake (shallow) 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215915	Kinsmen Beach A	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	100
4215916	Kinsmen Beach B	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	90
4215917	Kinsmen Beach C	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	86
4215918	Kinsmen Beach D	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	178
4215919	Kinsmen Beach E	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	106
4215920	Inlet of Rocky Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4215921	Inlet of Rocky Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4215922	Inlet of Rocky Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215923	Inlet of Rocky Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	7
4215924	Inlet of Rocky Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215925	Inlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4215926	Inlet of Second Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6
4215927	Inlet of Second Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5
4215928	Inlet of Second Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215929	Inlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4
4215930	Outlet of Second Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	27
4215931	Outlet of Second Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39
4215932	Outlet of Second Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	34
4215933	Outlet of Second Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	25

AGAT Laboratories

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
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TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Exceedance Summary

AGAT WORK ORDER: 22X934525

PROJECT: 220804.00

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4215934	Outlet of Second Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	24
4215944	Gully on Cavalier Drive 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2100
4215945	Gully on Cavalier Drive 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2800
4215946	Gully on Cavalier Drive 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2400
4215947	Gully on Cavalier Drive 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1900
4215948	Gully on Cavalier Drive 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	1900
4215949	FLN-1-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2800
4215950	FLN-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2600
4215951	FLN-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2300
4215952	FLN-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3200
4215953	FLN-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2000
4215954	FLN-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	6300
4215955	FLN-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5800
4215956	FLN-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5600
4215957	FLN-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3900
4215958	FLN-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	5700
4215959	Unmarked Outfall 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215960	Unmarked Outfall 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3
4215961	Unmarked Outfall 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	11
4215962	Unmarked Outfall 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215963	Unmarked Outfall 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2
4215964	FLW-7-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3900
4215965	FLW-7-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2800
4215966	FLW-7-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2500
4215967	FLW-7-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2200
4215968	FLW-7-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	2100
4215969	FLW-8-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	4100
4215970	FLW-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3000
4215971	FLW-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3500
4215972	FLW-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3200
4215973	FLW-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	3800
4215979	Outlet of First Lake 1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	169
4215980	Outlet of First Lake 2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	196
4215981	Outlet of First Lake 3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	216
4215982	Outlet of First Lake 4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	160
4215983	Outlet of First Lake 5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	178
4215984	FLS-4-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	42000
4215985	FLS-4-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39000
4215986	FLS-4-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	39000
4215987	FLS-4-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	40000
4215988	FLS-4-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 mL	1	40000

AGAT Laboratories

11 Morris Drive, Unit 122
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TEL (902)468-8718
FAX (902)468-8924
http://www.agatlabs.com

Method Summary

CLIENT NAME: CBCL LTD

AGAT WORK ORDER: 22X934525

PROJECT: 220804.00

ATTENTION TO: Michael Brophy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 10.5, 10.9, 8.9 AGAT Job Number: 22x934525
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: _____ AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A/O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL

Report Format
☐ Single sample per page
■ Multiple samples per page
■ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
■ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
'22 AUG 18 2:22 PM
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLW - 1 - 1	10am																										
FLW - 1 - 2	↓																										
FLW - 1 - 3																											
FLW - 1 - 4																											
FLW - 1 - 5	↓																										
FLW - 2 - 1	9:55am																										
FLW - 2 - 2	↓																										
FLW - 2 - 3																											
FLW - 2 - 4																											
FLW - 2 - 5	↓																										
FLW - 4 - 1																											
FLW - 4 - 2																											

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) | Date/Time

Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

Pink Copy - Client
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Page i of _____
NO:

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22x934525

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
~~FLW - 4 - 3~~																												
~~FLW - 4 - 4~~																												
~~FLW - 4 - 5~~																												
~~FLW - 5 - 1~~																												
~~FLW - 5 - 2~~																												
~~FLW - 5 - 3~~																												
~~FLW - 5 - 4~~																												
~~FLW - 5 - 5~~																												
FLW - 6 - 1	9:20am																											
FLW - 6 - 2	9:20am																											
FLW - 6 - 3	↓																											
FLW - 6 - 4																												
FLW - 6 - 5																												
FLS - 2 - 1	10:50am																											
FLS - 2 - 2	↓																											
FLS - 2 - 3																												
FLS - 2 - 4																												
FLS - 2 - 5																												
FLS - 3 - 1	10:25am																											
FLS - 3 - 2	↓																											
FLS - 3 - 3																												
FLS - 3 - 4																												
FLS - 3 - 5																												

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 2 of _____
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

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B3B 1M2
http://webearth.agatlabs.com

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Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only

Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 16.6, 14.4, 13.9 AGAT Job Number: 22x934525
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:

Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX: _____
PO#: _____ AGAT Quotation: _____
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle

Company: Same as above
Contact: _____
Address: _____
Phone: _____ Fax: _____
PO#: _____

Report Information

1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):

☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format

☐ Single sample per page
■ Multiple samples per page
■ Excel Format Included

Turnaround Time (TAT) Required

'22 AUG 18 2:16PM

Regular TAT:
■ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required: _____
Time Required: _____

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci										Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 3 - 1	Aug 18 11:20																									
FLN - 3 - 2																										
FLN - 3 - 3																										
FLN - 3 - 4																										
FLN - 3 - 5																										
FLN - 4 - 1	10:46																									
FLN - 4 - 2																										
FLN - 4 - 3																										
FLN - 4 - 4																										
FLN - 4 - 5																										
~~FLN - 5 - 1~~																										
~~FLN - 5 - 2~~																										

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) | Date/Time

Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

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22x 934525

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
~~FLN - 5 - 3~~																											
~~FLN - 5 - 4~~																											
~~FLN - 5 - 5~~																								722	DEC 13 2:18PM		
~~FLN - 6 - 1~~																											
~~FLN - 6 - 2~~																											
~~FLN - 6 - 3~~																											
~~FLN - 6 - 4~~																											
~~FLN - 6 - 5~~																											
~~FLN - 7 -~~ 1																											
~~FLN - 7 - 2~~																											
~~FLN - 7 - 3~~																											
~~FLN - 7 - 4~~																											
~~FLN - 7 -~~ 5																											
FLN - 8 - 1	1:05 am			one bottle in bag is mislabelled (maybe FLN5?)																							
FLN - 8 - 2																											
FLN - 8 - 3																											
FLN - 8 - 4																											
FLN - 8 - 5																											
~~FLE - 1 -~~ 1																											
~~FLE - 1 - 2~~																											
~~FLE - 1 - 3~~																											
~~FLE - 1 - 4~~																											
~~FLE - 1 - 5~~																											
~~FLE - 2 - 1~~																											
~~FLE - 2 -~~ 2																											

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 4 of _____
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

AGAT Laboratories
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Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22x934525

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant
~~FLE - 2 - 3~~				
~~FLE - 2 - 4~~				
~~FLE - 2 - 5~~				
FLE - 3 - 1	12:15pm			
FLE - 3 - 2	↓			
FLE - 3 - 3				
FLE - 3 - 4				
FLE - 3 - 5				
~~FLE - 4 - 1~~				
~~FLE - 4 - 2~~				
~~FLE - 4 - 3~~				
~~FLE - 4 - 4~~				
~~FLE - 4 - 5~~				
FLE - 5 - 1	12:40pm			
FLE - 5 - 2	↓			
FLE - 5 - 3				
FLE - 5 - 4				
FLE - 5 - 5				

Field Filtered / Preserved	Standard Water Analysis + T	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci													Other:	Other:	Hazardous (Y/N)	Lab Sample #

'22 AUG 12 2:15pm

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) | Date/Time

Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

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AGAT Laboratories

CHAIN OF CUSTODY RECORD

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Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 14.3, 13.9, 13.7 AGAT Job Number: 22x934525
Notes:

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX: _____
PO#: _____ AGAT Quotation: _____
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: _____ Fax: _____
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A / O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL _____

Report Format
☐ Single sample per page
☐ Multiple samples per page
☐ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
☐ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required: _____
Time Required: _____

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station First Lake (deep) 1	Aug 18 7:30am																										
Deep Station First Lake (deep) 2	7:30																										
Deep Station First Lake (deep) 3	↓																										
Deep Station First Lake (deep) 4																											
Deep Station First Lake (deep) 5	↓																										
Deep Station Rocky Lake (deep) 1	9:20																										
Deep Station Rocky Lake (deep) 2																											
Deep Station Rocky Lake (deep) 3																											
Deep Station Rocky Lake (deep) 4																											
Deep Station Rocky Lake (deep) 5	↓																										
Deep Station Second Lake (deep) 1	8:30																										
Deep Station Second Lake (deep) 2	↓																										

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) | Date/Time

Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

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Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22x934525

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station Second Lake (deep) 3	8:30 am																
Deep Station Second Lake (deep) 4	↓																
Deep Station Second Lake (deep) 5	↓																
Deep Station First Lake (shallow) 1	7:30 am																
Deep Station First Lake (shallow) 2	↓																
Deep Station First Lake (shallow) 3	↓																
Deep Station First Lake (shallow) 4	↓																
Deep Station First Lake (shallow) 5	↓																
Deep Station Rocky Lake (shallow) 1	9:30am																
Deep Station Rocky Lake (shallow) 2	↓																
Deep Station Rocky Lake (shallow) 3	↓																
Deep Station Rocky Lake (shallow) 4	↓																
Deep Station Rocky Lake (shallow) 5	↓																
Deep Station Second Lake (shallow) 1	8:30am																
Deep Station Second Lake (shallow) 2	↓																
Deep Station Second Lake (shallow) 3	↓																
Deep Station Second Lake (shallow) 4	↓																
Deep Station Second Lake (shallow) 5	↓																
Kinsmen Beach A	7:15am																
Kinsmen Beach B	↓																
Kinsmen Beach C	↓																
Kinsmen Beach D	↓																
Kinsmen Beach E	↓																
Inlet of Rocky Lake 1	1:30pm																
Inlet of Rocky Lake 2	↓																

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 7 of

NO:

AGAT Laboratories

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22, 934525

CHAIN OF CUSTODY RECORD

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
Inlet of Rocky Lake 3	1:30																										
Inlet of Rocky Lake 4	↓																										
Inlet of Rocky Lake 5	↓																										
Inlet of Second Lake 1	12:20																										
Inlet of Second Lake 2	↓																										
Inlet of Second Lake 3	↓																										
Inlet of Second Lake 4	↓																										
Inlet of Second Lake 5	↓																										
Outlet of Second Lake 1	13:45																										
Outlet of Second Lake 2	↓																										
Outlet of Second Lake 3	↓																										
Outlet of Second Lake 4	↓																										
Outlet of Second Lake 5	↓																										
Gully on Cavalier Drive 1	12:40																										
Gully on Cavalier Drive 2	↓																										
Gully on Cavalier Drive 3	↓																										
Gully on Cavalier Drive 4	↓																										
Gully on Cavalier Drive 5	↓																										

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time

Pink Copy - Client
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White Copy - AGAT

Page 8 of _____
NO:

AGAT Laboratories

CHAIN OF CUSTODY RECORD

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

Phone: 902-468-8718
Fax: 902-468-8924
Toll free: 888-468-8718
www.agatlabs.com

Laboratory use Only
Arrival Condition: ☐ Good ☐ Poor (complete 'notes')
Arrival Temperature: 15.5, 15.1, 15.5 AGAT Job Number: 22Y934525
Notes: Cooler, ice

Drinking Water Sample (y/n): _____ Reg. No._____
Waterworks Number:

Report To:
Company: CBCL
Contact: Michael Brophy
Address: Suite 901, 1505 Barrington St.
Halifax NS B3J 2R7
Phone: 902-421-7241 FAX:
PO#: _____ AGAT Quotation:
Client Project #: 220804.00

Invoice to: Same (Yes) - Circle
Company: Same as above
Contact:
Address:
Phone: Fax:
PO#:

Report Information
1. Name: Michael Brophy
Email: mbrophy@cbcl.ca
2. Name: Melissa Fraser
Email: mfraser@cbcl.ca

Regulatory Requirements (Check):
☐ PIRI Site Info (check all that apply):
☐ Tier 1 ☐ Res. ☐ Pot. ☐ Coarse
☐ Tier 2 ☐ Comm. ☐ N/Pot. ☐ Fine
☐ CCME ☐ CDWQ
☐ Ind. ☐ MAC/IMAC
☐ Com ☐ A/O
☐ Res/p ☐ NSDFOSP
☐ Ag ☐ Other
☐ FWAL

Report Format
☐ Single sample per page
■ Multiple samples per page
■ Excel Format Included

Turnaround Time (TAT) Required
Regular TAT:
■ 5 to 7 working days
Rush TAT:
☐ 24 to 48 hours
☐ 48 to 72 hours
Date Required:
Time Required:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
FLN - 1 - 1	8am																										
FLN - 1 - 2	↓																										
FLN - 1 - 3																											
FLN - 1 - 4																											
FLN - 1 - 5	↓																										
FLN - 2 - 1	7:20am																										
FLN - 2 - 2	↓																										
FLN - 2 - 3																											
FLN - 2 - 4																											
FLN - 2 - 5	↓																										
Unmarked Outfall 1	8:35am																										
Unmarked Outfall 2	↓																										

Sample Relinquished By (print name) | Date/Time | Samples Received By (print name) | Date/Time
Sample Relinquished By (sign) | Date/Time | Samples Received By (sign) | Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 9 of _____
NO:

AGAT Laboratories

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22x934525

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci												Other:	Other:	Hazardous (Y/N)	Lab Sample #
Unmarked Outfall 3																												
Unmarked Outfall 4																												
Unmarked Outfall 5																												
FLW - 3 - 1	Before																											
FLW - 3 - 2	Before																											
FLW - 3 - 3	Before																											
FLW - 3 - 4	Before																											
FLW - 3 - 5	Before																											
FLW - 7 - 1	9 am																											
FLW - 7 - 2																												
FLW - 7 - 3																												
FLW - 7 - 4																												
FLW - 7 - 5																												
FLW - 8 - 1	4:50 am																											
FLW - 8 - 2																												
FLW - 8 - 3																												
FLW - 8 - 4																												
FLW - 8 - 5																												
Inlet of First Lake 1	8 am																											
Inlet of First Lake 2																												
Inlet of First Lake 3																												
Inlet of First Lake 4																												
Inlet of First Lake 5																												
Outlet of First Lake 1	11 am																											
Outlet of First Lake 2																												

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 10 of _____
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

AGAT Laboratories

Unit 122 - 11 Morris Dr.
Dartmouth, Nova Scotia
B3B 1M2
http://webearth.agatlabs.com

22x934525

CHAIN OF CUSTODY

Report to:
Company: CBCL
Same as COC#:

SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered / Preserved	Standard Water Analysis +	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci											Other:	Other:	Hazardous (Y/N)	Lab Sample #
Outlet of First Lake 3																											
Outlet of First Lake 4																											
Outlet of First Lake 5																											
FLS - 4 - 1	10:15am																										
FLS - 4 - 2																											
FLS - 4 - 3																											
FLS - 4 - 4																											
FLS - 4 - 5																											
FLW - 3 - 1 After	9:45am																										
FLW - 3 - 2 After																											
FLW - 3 - 3 After																											
FLW - 3 - 4 After																											
FLW - 3 - 5 After																											

Sample Relinquished By (print name)	Date/Time	Samples Received By (print name)	Date/Time	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page 11 of
Sample Relinquished By (sign)	Date/Time	Samples Received By (sign)	Date/Time		NO:

Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9325
Received: 2022/09/27, 16:07

Sample Matrix: Water
Samples Received: 50

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
E.coli in water (CFU/100mL)	25	N/A	2022/09/27	ATL SOP 00097	MOE E3371 R2 (2018)
E.coli in water (CFU/100mL)	25	N/A	2022/09/28	ATL SOP 00097	MOE E3371 R2 (2018)

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9325
Received: 2022/09/27, 16:07

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Keri Mackay, Customer Experience Team Lead
Email: Keri.MACKAY@bureauveritas.com
Phone# (902)420-0203 Ext:294
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT632	TVT633	TVT634	TVT635		
Sampling Date		2022/09/27 07:30	2022/09/27 07:30	2022/09/27 07:30	2022/09/27 07:30		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DEEP STATION FIRST LAKE (DEEP) 1	DEEP STATION FIRST LAKE (DEEP) 2	DEEP STATION FIRST LAKE (DEEP) 3	DEEP STATION FIRST LAKE (DEEP) 4	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	170	150	180	170	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT636		TVT637	TVT638		
Sampling Date		2022/09/27 07:30		2022/09/27 10:30	2022/09/27 10:30		
COC Number		N/A		N/A	N/A		
	UNITS	DEEP STATION FIRST LAKE (DEEP) 5	QC Batch	DEEP STATION ROCKY LAKE (DEEP) 1	DEEP STATION ROCKY LAKE (DEEP) 2	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	150	8250374	18	8.0	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT639	TVT640	TVT641		
Sampling Date		2022/09/27 10:30	2022/09/27 10:30	2022/09/27 10:30		
COC Number		N/A	N/A	N/A		
	UNITS	DEEP STATION ROCKY LAKE (DEEP) 3	DEEP STATION ROCKY LAKE (DEEP) 4	DEEP STATION ROCKY LAKE (DEEP) 5	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	24	16	10	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT643	TVT644	TVT645	TVT646		
Sampling Date		2022/09/27 09:15	2022/09/27 09:15	2022/09/27 09:15	2022/09/27 09:15		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DEEP STATION SECOND LAKE (DEEP) 1	DEEP STATION SECOND LAKE (DEEP) 2	DEEP STATION SECOND LAKE (DEEP) 3	DEEP STATION SECOND LAKE (DEEP) 4	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	36	34	38	36	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT647	TVT648	TVT649	TVT650		
Sampling Date		2022/09/27 09:15	2022/09/27 07:30	2022/09/27 07:30	2022/09/27 07:30		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DEEP STATION SECOND LAKE (DEEP) 5	DEEP STATION FIRST LAKE (SHALLOW) 1	DEEP STATION FIRST LAKE (SHALLOW) 2	DEEP STATION FIRST LAKE (SHALLOW) 3	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	62	160	180	140	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT651	TVT652		TVT653		
Sampling Date		2022/09/27 07:30	2022/09/27 07:30		2022/09/27 10:45		
COC Number		N/A	N/A		N/A		
	UNITS	DEEP STATION FIRST LAKE (SHALLOW) 4	DEEP STATION FIRST LAKE (SHALLOW) 5	QC Batch	DEEP STATION ROCKY LAKE (SHALLOW) 1	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	190	160	8250374	6.0	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT654	TVT655	TVT656	TVT657		
Sampling Date		2022/09/27 10:45	2022/09/27 10:45	2022/09/27 10:45	2022/09/27 10:45		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DEEP STATION ROCKY LAKE (SHALLOW) 2	DEEP STATION ROCKY LAKE (SHALLOW) 3	DEEP STATION ROCKY LAKE (SHALLOW) 4	DEEP STATION ROCKY LAKE (SHALLOW) 5	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	14	24	30	14	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT658	TVT659	TVT660	TVT661		
Sampling Date		2022/09/27 08:50	2022/09/27 08:50	2022/09/27 08:50	2022/09/27 08:50		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	DEEP STATION SECOND LAKE (SHALLOW) 1	DEEP STATION SECOND LAKE (SHALLOW) 2	DEEP STATION SECOND LAKE (SHALLOW) 3	DEEP STATION SECOND LAKE (SHALLOW) 4	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	32	28	40	22	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT662			TVT663	TVT664		
Sampling Date		2022/09/27 08:50			2022/09/27 13:20	2022/09/27 13:20		
COC Number		N/A			N/A	N/A		
	UNITS	DEEP STATION SECOND LAKE (SHALLOW) 5	RDL	QC Batch	GULLY ON CAVALIER DRIVE 1	GULLY ON CAVALIER DRIVE 2	RDL	QC Batch
Microbiological								
Escherichia coli	CFU/100mL	30	2.0	8250374	3100	2400	100	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT665	TVT666	TVT667		
Sampling Date		2022/09/27 13:20	2022/09/27 13:20	2022/09/27 13:20		
COC Number		N/A	N/A	N/A		
	UNITS	GULLY ON CAVALIER DRIVE 3	GULLY ON CAVALIER DRIVE 4	GULLY ON CAVALIER DRIVE 5	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	3500	3700	3000	100	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT668	TVT669	TVT670		
Sampling Date		2022/09/27 15:20	2022/09/27 15:20	2022/09/27 15:20		
COC Number		N/A	N/A	N/A		
	UNITS	INLET OF ROCKY LAKE 1	INLET OF ROCKY LAKE 2	INLET OF ROCKY LAKE 3	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	100	150	88	2.0	8251636

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT671	TVT672		TVT673		
Sampling Date		2022/09/27 15:20	2022/09/27 15:20		2022/09/27 13:50		
COC Number		N/A	N/A		N/A		
	UNITS	INLET OF ROCKY LAKE 4	INLET OF ROCKY LAKE 5	QC Batch	INLET OF SECOND LAKE 1	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	100	140	8251636	80	2.0	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT674	TVT675	TVT676		
Sampling Date		2022/09/27 13:50	2022/09/27 13:50	2022/09/27 13:50		
COC Number		N/A	N/A	N/A		
	UNITS	INLET OF SECOND LAKE 2	INLET OF SECOND LAKE 3	INLET OF SECOND LAKE 4	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	60	62	64	2.0	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT677		TVT678	TVT679		
Sampling Date		2022/09/27 13:50		2022/09/27 07:45	2022/09/27 07:45		
COC Number		N/A		N/A	N/A		
	UNITS	INLET OF SECOND LAKE 5	QC Batch	KINSMEN BEACH A	KINSMEN BEACH B	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	66	8251867	>500	>500	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT680	TVT681	TVT682		
Sampling Date		2022/09/27 07:45	2022/09/27 07:45	2022/09/27 07:45		
COC Number		N/A	N/A	N/A		
	UNITS	KINSMEN BEACH C	KINSMEN BEACH D	KINSMEN BEACH E	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	>500	>500	>500	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.7°C

Samples received >10°C more than 1hr after sampling time.

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8250374	MAA	Method Blank	Escherichia coli	2022/09/29	<1.0		CFU/100mL	
8251521	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	
8251636	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	
8251867	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Robyn Edwards

Robyn Edwards, Bedford Micro Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330301
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9359
Received: 2022/09/27, 16:05

Sample Matrix: Water
Samples Received: 30

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
E.coli in water (CFU/100mL)	30	N/A	2022/09/27	ATL SOP 00097	MOE E3371 R2 (2018)

Remarks:

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Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330301
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9359
Received: 2022/09/27, 16:05

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Keri Mackay, Customer Experience Team Lead
Email: Keri.MACKAY@bureauveritas.com
Phone# (902)420-0203 Ext:294
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For Service Group specific validation please refer to the Validation Signature Page.

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT846	TVT847	TVT848	TVT849	TVT850	TVT851		
Sampling Date		2022/09/27 08:25	2022/09/27 08:25	2022/09/27 08:25	2022/09/27 08:25	2022/09/27 08:25	2022/09/27 08:15		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4	FLW-1-5	FLW-2-1	RDL	QC Batch
Microbiological									
Escherichia coli	CFU/100mL	>25000	>25000	>25000	>25000	>25000	1900	100	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT852	TVT853	TVT854	TVT855		TVT856	TVT857		
Sampling Date		2022/09/27 08:15	2022/09/27 08:15	2022/09/27 08:15	2022/09/27 08:15		2022/09/27 07:55	2022/09/27 07:55		
COC Number		N/A	N/A	N/A	N/A		N/A	N/A		
	UNITS	FLW-2-2	FLW-2-3	FLW-2-4	FLW-2-5	QC Batch	FLW-6-1	FLW-6-2	RDL	QC Batch
Microbiological										
Escherichia coli	CFU/100mL	1700	1100	2200	1900	8250374	3000	1600	100	8250446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT859	TVT860	TVT861		TVT862	TVT863	TVT864		
Sampling Date		2022/09/27 07:55	2022/09/27 07:55	2022/09/27 07:55		2022/09/27 08:45	2022/09/27 08:45	2022/09/27 08:45		
COC Number		N/A	N/A	N/A		N/A	N/A	N/A		
	UNITS	FLW-6-3	FLW-6-4	FLW-6-5	RDL	FLS-2-1	FLS-2-2	FLS-2-3	RDL	QC Batch
Microbiological										
Escherichia coli	CFU/100mL	2600	2400	2900	100	190	200	160	2.0	8250446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVT865	TVT866		TVT867	TVT868	TVT869	TVT870		
Sampling Date		2022/09/27 08:45	2022/09/27 08:45		2022/09/27 09:23	2022/09/27 09:23	2022/09/27 09:23	2022/09/27 09:23		
COC Number		N/A	N/A		N/A	N/A	N/A	N/A		
	UNITS	FLS-2-4	FLS-2-5	RDL	FLS-3-1	FLS-3-2	FLS-3-3	FLS-3-4	RDL	QC Batch
Microbiological										
Escherichia coli	CFU/100mL	240	200	2.0	>25000	>25000	>25000	>25000	100	8250446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT871	TVT872	TVT873	TVT874	TVT875	TVT876		
Sampling Date		2022/09/27 09:23	2022/09/27 09:02	2022/09/27 09:02	2022/09/27 09:02	2022/09/27 09:02	2022/09/27 09:02		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	**FLS-3-5**	**FLS-4-1**	**FLS-4-2**	**FLS-4-3**	**FLS-4-4**	**FLS-4-5**	**RDL**	**QC Batch**
Microbiological									
Escherichia coli	CFU/100mL	>25000	5900	5500	5600	5300	7200	100	8250446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.3°C

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8250374	MAA	Method Blank	Escherichia coli	2022/09/29	<1.0		CFU/100mL	
8250446	RED	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100mL	

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Robyn Edwards

Robyn Edwards, Bedford Micro Supervisor

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Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
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Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330307
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9426
Received: 2022/09/27, 16:04

Sample Matrix: Water
Samples Received: 50

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
E.coli in water (CFU/100mL)	20	N/A	2022/09/27	ATL SOP 00097	MOE E3371 R2 (2018)
E.coli in water (CFU/100mL)	30	N/A	2022/09/28	ATL SOP 00097	MOE E3371 R2 (2018)

Remarks:

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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your C.O.C. #: N/A

Attention: Melissa Fraser

CBCL Limited
Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330307
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9426
Received: 2022/09/27, 16:04

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Keri Mackay, Customer Experience Team Lead
Email: Keri.MACKAY@bureauveritas.com
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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU352	TVU353	TVU354	TVU355	TVU356		TVU357		
Sampling Date		2022/09/27 10:45	2022/09/27 10:45	2022/09/27 10:45	2022/09/27 10:45	2022/09/27 10:45		2022/09/27 10:15		
COC Number		N/A	N/A	N/A	N/A	N/A		N/A		
	UNITS	**FLN-1-1**	**FLN-1-2**	**FLN-1-3**	**FLN-1-4**	**FLN-1-5**	**QC Batch**	**FLN-2-1**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	1000	1000	700	700	1400	8251521	>25000	100	8250637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU358	TVU359	TVU360	TVU361		TVU362	TVU363		
Sampling Date		2022/09/27 10:15	2022/09/27 10:15	2022/09/27 10:15	2022/09/27 10:15		2022/09/27 10:20	2022/09/27 10:20		
COC Number		N/A	N/A	N/A	N/A		N/A	N/A		
	UNITS	**FLN-2-2**	**FLN-2-3**	**FLN-2-4**	**FLN-2-5**	**RDL**	**FLN-3-1**	**FLN-3-2**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	>25000	>25000	>25000	>25000	100	46	62	2.0	8250637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU364	TVU365	TVU366		TVU367		
Sampling Date		2022/09/27 10:20	2022/09/27 10:20	2022/09/27 10:20		2022/09/27 11:30		
COC Number		N/A	N/A	N/A		N/A		
	UNITS	**FLN-3-3**	**FLN-3-4**	**FLN-3-5**	**QC Batch**	**UNMARKED OUTFALL 1**	**RDL**	**QC Batch**
Microbiological								
Escherichia coli	CFU/100mL	36	58	62	8250637	24	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU368	TVU369	TVU370		
Sampling Date		2022/09/27 11:30	2022/09/27 11:30	2022/09/27 11:30		
COC Number		N/A	N/A	N/A		
	UNITS	**UNMARKED OUTFALL 2**	**UNMARKED OUTFALL 3**	**UNMARKED OUTFALL 4**	**RDL**	**QC Batch**
Microbiological						
Escherichia coli	CFU/100mL	20	28	14	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU371			TVU372	TVU373	TVU374		
Sampling Date		2022/09/27 11:30			2022/09/27 12:30	2022/09/27 12:30	2022/09/27 12:30		
COC Number		N/A			N/A	N/A	N/A		
	UNITS	UNMARKED OUTFALL 5	RDL	QC Batch	FLW-3-1	FLW-3-2	FLW-3-3	RDL	QC Batch
Microbiological									
Escherichia coli	CFU/100mL	10	2.0	8251521	>25000	>25000	>25000	100	8251636

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU375	TVU376	TVU377	TVU378	TVU379	TVU380	TVU381		
Sampling Date		2022/09/27 12:30	2022/09/27 12:30	2022/09/27 12:05	2022/09/27 12:05	2022/09/27 12:05	2022/09/27 12:05	2022/09/27 12:05		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	FLW-3-4	FLW-3-5	FLW-7-1	FLW-7-2	FLW-7-3	FLW-7-4	FLW-7-5	RDL	QC Batch
Microbiological										
Escherichia coli	CFU/100mL	>25000	>25000	7200	7700	5200	7700	6900	100	8251636

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU382	TVU383	TVU384		TVU385	TVU386		
Sampling Date		2022/09/27 11:45	2022/09/27 11:45	2022/09/27 11:45		2022/09/27 11:45	2022/09/27 11:45		
COC Number		N/A	N/A	N/A		N/A	N/A		
	UNITS	FLW-8-1	FLW-8-2	FLW-8-3	QC Batch	FLW-8-4	FLW-8-5	RDL	QC Batch
Microbiological									
Escherichia coli	CFU/100mL	8900	8900	11000	8251636	9700	7700	100	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU387	TVU388	TVU389		
Sampling Date		2022/09/27 09:50	2022/09/27 09:50	2022/09/27 09:50		
COC Number		N/A	N/A	N/A		
	UNITS	OUTLET OF FIRST LAKE 1	OUTLET OF FIRST LAKE 2	OUTLET OF FIRST LAKE 3	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	110	140	100	2.0	8250446

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU390	TVU391		TVU392		
Sampling Date		2022/09/27 09:50	2022/09/27 09:50		2022/09/27 10:35		
COC Number		N/A	N/A		N/A		
	UNITS	OUTLET OF FIRST LAKE 4	OUTLET OF FIRST LAKE 5	QC Batch	INLET OF FIRST LAKE 1	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	130	130	8250446	>500	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU393	TVU394	TVU395		
Sampling Date		2022/09/27 10:35	2022/09/27 10:35	2022/09/27 10:35		
COC Number		N/A	N/A	N/A		
	UNITS	INLET OF FIRST LAKE 2	INLET OF FIRST LAKE 3	INLET OF FIRST LAKE 4	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	>500	>500	>500	2.0	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU396		TVU794		TVU796		
Sampling Date		2022/09/27 10:35		2022/09/27 09:50		2022/09/27 09:50		
COC Number		N/A		N/A		N/A		
	UNITS	INLET OF FIRST LAKE 5	QC Batch	OUTLET OF SECOND LAKE 1	QC Batch	OUTLET OF SECOND LAKE 2	RDL	QC Batch
Microbiological								
Escherichia coli	CFU/100mL	>500	8251521	100	8250374	82	2.0	8250615

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU797		TVU798	TVU799		
Sampling Date		2022/09/27 09:50		2022/09/27 09:50	2022/09/27 09:50		
COC Number		N/A		N/A	N/A		
	UNITS	OUTLET OF SECOND LAKE 3	QC Batch	OUTLET OF SECOND LAKE 4	OUTLET OF SECOND LAKE 5	RDL	QC Batch
Microbiological							
Escherichia coli	CFU/100mL	78	8250615	88	88	2.0	8250374

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	16.0°C

Samples received >10°C more than 1hr after sampling time.

Results relate only to the items tested.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8250374	MAA	Method Blank	Escherichia coli	2022/09/29	<1.0		CFU/100mL	
8250446	RED	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100mL	
8250615	MAA	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100mL	
8250637	JWA	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100mL	
8251521	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	
8251636	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Robyn Edwards

Robyn Edwards, Bedford Micro Supervisor

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Your C.O.C. #: N/A

Attention: Melissa Fraser

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Halifax - Standing offer
1505 Barrington Street
Suite 901 / PO Box 606
Halifax, NS
CANADA B3J 3Y6

Report Date: 2022/10/06
Report #: R7330295
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9496
Received: 2022/09/27, 16:09

Sample Matrix: Water
Samples Received: 25

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
E.coli in water (CFU/100mL)	25	N/A	2022/09/28	ATL SOP 00097	MOE E3371 R2 (2018)

Remarks:

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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your C.O.C. #: N/A

Attention: Melissa Fraser

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Report Date: 2022/10/06
Report #: R7330295
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CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9496
Received: 2022/09/27, 16:09

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Email: Keri.MACKAY@bureauveritas.com
Phone# (902)420-0203 Ext:294

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU641	TVU642	TVU643	TVU644	TVU645		TVU646		
Sampling Date		2022/09/27 11:30	2022/09/27 11:30	2022/09/27 11:30	2022/09/27 11:30	2022/09/27 11:30		2022/09/27 11:50		
COC Number		N/A	N/A	N/A	N/A	N/A		N/A		
	UNITS	**FLN-4-1**	**FLN-4-2**	**FLN-4-3**	**FLN-4-4**	**FLN-4-5**	**RDL**	**FLN-8-1**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	360	370	350	370	340	10	10000	100	8251521

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU647	TVU648	TVU649	TVU650			TVU651		
Sampling Date		2022/09/27 11:50	2022/09/27 11:50	2022/09/27 11:50	2022/09/27 11:50			2022/09/27 13:20		
COC Number		N/A	N/A	N/A	N/A			N/A		
	UNITS	**FLN-8-2**	**FLN-8-3**	**FLN-8-4**	**FLN-8-5**	**RDL**	**QC Batch**	**FLE-2-1**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	11000	11000	11000	10000	100	8251521	>500	2.0	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU652	TVU653	TVU654	TVU655		TVU656	TVU657		
Sampling Date		2022/09/27 13:20	2022/09/27 13:20	2022/09/27 13:20	2022/09/27 13:20		2022/09/27 13:40	2022/09/27 13:40		
COC Number		N/A	N/A	N/A	N/A		N/A	N/A		
	UNITS	**FLE-2-2**	**FLE-2-3**	**FLE-2-4**	**FLE-2-5**	**RDL**	**FLE-3-1**	**FLE-3-2**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	>500	>500	>500	>500	2.0	>2500	>2500	10	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		TVU658	TVU659	TVU660		TVU661	TVU662	TVU663		
Sampling Date		2022/09/27 13:40	2022/09/27 13:40	2022/09/27 13:40		2022/09/27 14:30	2022/09/27 14:30	2022/09/27 14:30		
COC Number		N/A	N/A	N/A		N/A	N/A	N/A		
	UNITS	**FLE-3-3**	**FLE-3-4**	**FLE-3-5**	**RDL**	**FLE-5-1**	**FLE-5-2**	**FLE-5-3**	**RDL**	**QC Batch**
Microbiological										
Escherichia coli	CFU/100mL	>2500	>2500	>2500	10	>500	>500	>500	2.0	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU664	TVU665		
Sampling Date		2022/09/27 14:30	2022/09/27 14:30		
COC Number		N/A	N/A		
	UNITS	FLE-5-4	FLE-5-5	RDL	QC Batch
Microbiological					
Escherichia coli	CFU/100mL	>500	>500	2.0	8251867

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.7°C

Samples received >10°C more than 1hr after sampling time.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
8251521	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	
8251867	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100mL	

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Robyn Edwards

Robyn Edwards, Bedford Micro Supervisor

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

APPENDIX D

Project Memos

Progress Report

Date	June 21, 2022
Memo to	Emma Wattie (HRM)
Project name	220804.00 HRM Pollution Control – First Lake
Subject	Progress Report – June 2022
From	Michael Brophy
Copies to	Melissa Fraser, Alyssa Chiasson(CBCL); Elizabeth Montgomery (HRM)

PREAMBLE

The following progress report summarizes the activities completed in June 2022 for the HRM Pollution Control Study on First Lake. This report will include a summary of work completed, any noted issues or concerns, preliminary results and forecasted activities and schedule for future work.

SUMMARY OF WORK COMPLETED

The first sampling event occurred on June 15, 2022. There was 18.1 mm of continuous precipitation between June 13-14, preceded by a dry period of 48 hrs, meeting the criteria of a wet weather event. Samples were collected within 24 hours of rainfall end.

31 different locations were sampled throughout this sampling event. Samples were taken for *E. coli*, Microbial Source Tracking (MST), YSI probe measurements (pH, DO, temperature, specific conductance and TDS) , and flow (where applicable). A total of 5 samples for *E. coli* were taken at each location to calculate the geometric mean.

Samples were successfully taken at the deep station and at the surface from First Lake, Second Lake and Rocky Lake. The inlet and outlet were sampled at both First Lake and Second Lake, however the inlet to Rocky Lake was not sampled, due to issues with accessibility.

Progress Report

Of the 25 outfalls identified in the attached map from Halifax Water, 20 were successfully located and 18 were sampled. Two of the culverts, FLE-1 and FLN-7 had no flow therefore could not be sampled. We will continue to monitor these locations for flow in future sampling events. Additionally, there was an outfall/gully off Cavalier Drive that feeds into Second Lake that was identified (by Friends of First Lake) and it was added to the sampling program.

Issues and Concerns

No major issues and concerns were identified from the first sampling event. Our sampling team is working on a safe and accessible course of action to sample the inlet to Rocky Lake in future sampling events.

The following outfalls were not located at both the initial site visit and the first sampling event:

- FLN-5
- FLN-6
- FLE-4
- FLW-4
- FLW5

We informed the accredited laboratory in advance that these samples were lake/stormwater outfalls, however the laboratory did not perform any dilutions on the samples. This led to most of the results reported as >200 CFU/100mL, instead of an actual value. This will be corrected for future sampling events.

Preliminary Results

The Guidelines for Canadian Recreational Water Quality report a geometric mean concentration of ≤ 200 CFU/100mL, and a maximum single sample of ≤ 400 CFU/100mL. No *E. coli* concentrations were above these limits in any samples collected from Second Lake and Rocky Lake. As for First Lake, no in-lake samples had *E. coli* concentrations above these limits, however a number of outfalls did have *E. coli* detections >200 CFU/100 mL. These locations include:

Progress Report

Table 1. Sample locations with *E. coli* concentrations >200 CFU/100mL.

- Inlet First Lake	- FLW-1
- FLN-1	- FLW-2
- FLN-2	- FLW-3
- FLN-5	- FLW-6
- FLN-8	- FLW-7
- FLS-3	- FLW-8
- FLS-4	- Gully off Cavalier Drive

The locations with *E. coli* detection were compared to previous results from Friends of First Lake from 2021. *E. coli* results for these locations are presented in Table 2.

Table 2. First Lake *E. coli* results for 2021 and 2022

Location ID		*E. coli* Results			
CBCL	Friends of First Lake	Date	CBCL (CFU/100 mL)	Date	Friends of First Lake (MPN/100 mL)
FLW-6	FLEC-1	2022-06-15	> 200	2021-08-11	1095
FLN-1	FLEC-3A	2022-06-15	> 200	2021-08-11	651
FLN-1	FLEC-3A		-	2021-09-08	3466
Kinsmen Beach A	FLEC-3B	2022-06-15	135	2021-08-11	250
Kinsmen Beach B	FLEC-3B	2022-06-15	92	2021-09-08	167
Kinsmen Beach C		2022-06-15	63		-
Kinsmen Beach D		2022-06-15	180		-
Kinsmen Beach E		2022-06-15	199		-
FLS-4	FLEC-7	2022-06-15	> 200	2021-10-18	2407
FLN-1	FLECD-1	2022-06-15	> 200	2021-11-01	3973

Forecasted Activities and Schedule

Weather dependent, our next sampling event is scheduled for the week of July 11-15. This is one week later than the initial proposed schedule, due to staff availability during this time. Future sampling events might vary from the proposed schedule, due to the need to sample during specific weather criteria. Furthermore, the water sampling team is doing their best to ensure sampling events are staggered to represent the entire length of the summer season.

Progress Report

CONCLUSION

CBCL is pleased to provide this progress report and should you have any questions or comments, please do not hesitate to reach out to the undersigned.

Yours very truly,

CBCL Limited

Michael Brophy, M.A.Sc.
Process Specialist
E-Mail: mbrophy@cbcl.ca

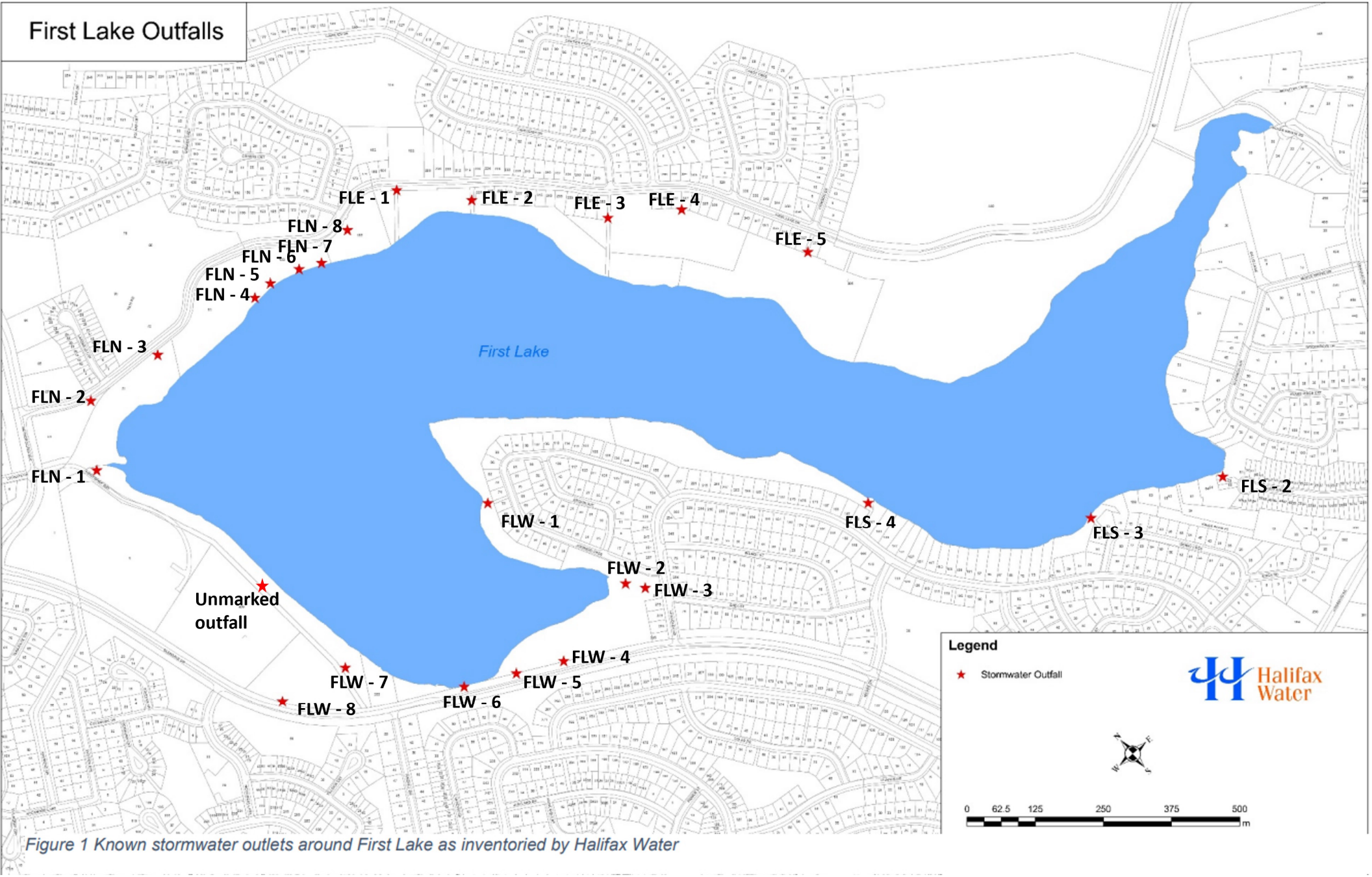

Figure 1 Known stormwater outlets around First Lake as inventoried by Halifax Water

Progress Report

Date	July 21, 2022
Memo to	Emma Wattie (HRM)
Project name	220804.00 HRM Pollution Control – First Lake
Subject	Progress Report – July 2022
From	Michael Brophy
Copies to	CBCL: Melissa Fraser, Alyssa Chiasson; HRM: Elizabeth Montgomery

Preamble

The following progress report summarizes the activities completed in July 2022 for the HRM Pollution Control Study on First Lake. This report will include a summary of work completed, any noted issues or concerns, preliminary results, and forecasted activities and schedule for future work.

Summary of Work Completed

The second sampling event occurred on July 14, 2022. There was no precipitation leading up to the event, meeting the criteria of dry/low flow conditions.

Twenty-nine (29) different locations were sampled throughout this event. Samples were taken for *E. coli*, YSI probe measurements (pH, dissolved oxygen, temperature, specific conductance, and total dissolved solids), and flow (where applicable). A total of 5 samples for *E. coli* were taken at each location to calculate the geometric mean.

Samples were successfully taken at the deep station and at the surface for First Lake, Second Lake, and Rocky Lake. Furthermore, samples were taken at the inlet and outlet from First Lake and Second Lake, as well as the inlet to Rocky Lake.

Of the 25 outfalls identified in the map from Halifax Water in Appendix A, 24 were successfully located and 17 were sampled. FLE-4 was found but was in the backyard of

residential property and no one was home to ask permission to cross the property to access the outfall. Outfalls FLW-4, FLW-5, FLN-6 were located during this sampling event following input from Halifax Water, however, had no flow and could not be sampled. Culverts FLE-1, FLN-4, FLN-5, and FLN-7 also had no flow and could not be sampled. We will continue to monitor these locations in future sampling events.

Issues and Concerns

No major issues and concerns were identified from the second sampling event.

Dilutions were performed on the *E. coli* samples from the July sampling event. After a discussion with the accredited laboratory and comparing with previous results from Friends of First Lake, we determined that a 100x dilution should be sufficient. Unfortunately, there were still 4 sampling locations that were above the detection limit for this dilution of > 20,000 CFU/100 mL.

Preliminary Results

E. coli

The Guidelines for Canadian Recreational Water Quality report a geometric mean concentration of ≤ 200 CFU/100mL, and a maximum single sample of ≤ 400 CFU/100mL. *E. coli* concentrations detected in Second Lake and Rocky Lake were below these limits, along with in-lake samples for First Lake and Kinmen Beach samples. However, there were a number of outfalls into First Lake that did have *E. coli* detections in exceedance of 200 CFU/100 mL.

The locations with *E. coli* detection for the July 14th sampling event with dry/low flow conditions were compared to the results from the first round of sampling in June that was following a wet weather event. *E. coli* results for these locations are presented in Table 1.

Table 1: First Lake *E. coli* results for June and July 2022

Location ID	*E. coli* Results			
CBCL	June 15, 2022 (Wet)		July 14, 2022 (Dry)	
	Date	(CFU/100 mL)	Date	(CFU/100 mL)
FLW-1	2022-06-15	> 200	2022-07-14	> 20000
FLW-2	2022-06-15	> 200	2022-07-14	> 20000
FLW-3	2022-06-15	> 200	2022-07-14	5377
FLW-6	2022-06-15	> 200	2022-07-14	1243
FLW-7	2022-06-15	> 200	2022-07-14	107
FLW-8	2022-06-15	> 200	2022-07-14	> 20000
Kinsmen Beach A	2022-06-15	135	2022-07-14	84
Kinsmen Beach B	2022-06-15	92	2022-07-14	60
Kinsmen Beach C	2022-06-15	63	2022-07-14	60
Kinsmen Beach D	2022-06-15	180	2022-07-14	90
Kinsmen Beach E	2022-06-15	199	2022-07-14	110
FLN-1	2022-06-15	> 200	2022-07-14	816
FLN-2	2022-06-15	> 200	2022-07-14	14560
FLN-5	2022-06-15	> 200	2022-07-14	-
FLN-8	2022-06-15	> 200	2022-07-14	9691
FLS-3	2022-06-15	> 200	2022-07-14	13064
FLS-4	2022-06-15	> 200	2022-07-14	> 20000
Inlet First Lake	2022-06-15	> 200	2022-07-14	328
Gully on Cavalier Drive	2022-06-15	248	2022-07-14	25

Microbial Source Tracking

Samples for Microbial Source Tracking (MST) were not taken during the July 14,2022 sampling event.

We received the MST results from the June 15, 2022, MST sampling from Dalhousie, and the raw data is presented in Appendix B. Further analysis of this data will be completed as the project progresses.

Forecasted Activities and Schedule

Weather dependent, our next sampling event is scheduled for the week of August 2-5. This is one week later than the initial proposed schedule, due to staff availability during this time. Future sampling events might vary from the proposed schedule, due to the need to sample during specific weather criteria.

Progress Report

Conclusion

CBCL is pleased to provide this progress report and should you have any questions or comments, please do not hesitate to reach out to the undersigned.

Yours very truly,

CBCL Limited

Michael Brophy, M.A.Sc.
Process Specialist
E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water

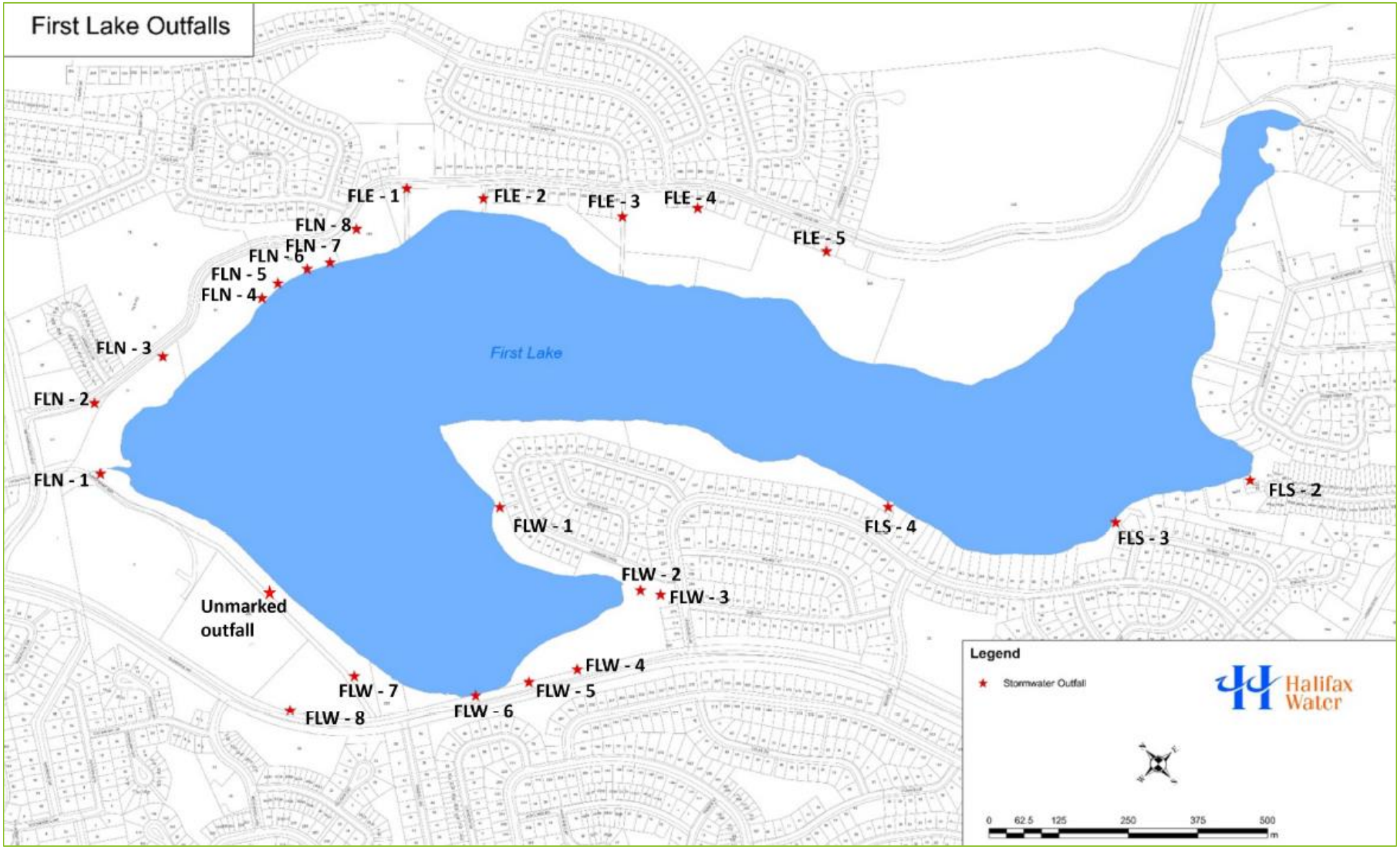

Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water

APPENDIX B

MST Sampling Results

Table 1: MST Sampling

Sample name	Human HF183 markers (Log copies/100 mL)	Human CrAssphage markers (Log copies/100 mL)	Avian (bird) markers (Log copies/100 mL)	Dog markers (Log copies/100 mL)
Rock lake deep	<1.1	<2.83	1.91	2.21
Rock lake shallow	<1.1	<2.83	1.25	2.10
Second lake deep station	<1.1	<2.83	1.76	<1.1
Second lake shallow	<1.1	<2.83	<1.1	<1.1
FLN-1	5.66	6.14	2.45	6.67
FLN-2	4.03	4.85	<1.1	3.59
FLN-3	2.18	3.83	1.10	<1.1
FLN-8	6.15	5.62	2.53	2.42
FLE-2	4.63	4.83	1.49	<1.1
FLE-3	3.97	4.05	1.44	<1.1
FLE-5	3.37	3.97	1.28	<1.1
FLW-1	6.85	7.22	1.65	2.63
FLW-2	7.51	6.04	1.23	<1.1
FLW-3	7.03	6.33	1.11	2.80
FLW-5	5.09	4.68	2.59	<1.1
FLW-6	6.29	6.21	2.04	<1.1
FLW-7	4.68	5.63	1.56	<1.1
FLW-8	4.83	6.00	1.18	<1.1
FLS-2	4.60	3.97	1.58	2.24
FLS-3	6.39	6.50	1.20	3.32
FLS-4	6.74	6.43	1.66	<1.1
First lake shallow	3.12	4.02	<1.1	<1.1
First lake deep	<1.1	<2.83	<1.1	<1.1
Second lake inlet	2.05	2.95	1.36	5.79
Culvert upstream	4.69	5.57	2.61	<1.1
Rocky lake outlet	<1.1	<2.83	2.25	2.10
Kinsmen beach	3.69	4.25	1.53	<1.1
Cavalier Gully	3.63	4.21	2.90	<1.1
Unmarked Outfall	<1.1	<2.83	<1.1	<1.1
Outlet of First lake	2.89	3.99	<1.1	3.31

*Samples reported as < 1.1 log copies/100 mL indicate a non-detect.

Progress Report

Date	August 26, 2022
Memo to	Emma Wattie (HRM)
Project name	220804.00 HRM Pollution Control – First Lake
Subject	Progress Report – August 2022
From	Michael Brophy
Copies to	HRM: Elizabeth Montgomery; Halifax Water: Joel Haley; CBCL: Melissa Fraser, Alyssa Chiasson, Zack Levisky

Preamble

The following progress report summarizes the activities completed in August 2022 for the HRM Pollution Control Study on First Lake. This report will include a summary of work completed, any noted issues or concerns, preliminary results, and forecasted activities and schedule for future work.

Summary of Work Completed

The third sampling event occurred on August 10, 2022. There was minimal precipitation leading up to the event, meeting the criteria of dry/low flow conditions. The fourth sampling event took place on August 18, 2022 and was scheduled to follow a weather event. According to Environment Canada, there was 12.8mm of precipitation the day prior to the sampling event.

Twenty-eight (28) different locations were sampled on August 10, and twenty-nine (29) on August 18. Samples were taken for *E. coli*, YSI probe measurements (pH, dissolved oxygen, temperature, specific conductance, and total dissolved solids), and flow (where applicable). A total of 5 samples for *E. coli* were taken at each location to calculate the geometric mean.

Samples were successfully taken at the deep station and at the surface for First Lake, Second Lake, and Rocky Lake. Furthermore, samples were taken at the inlet and outlet from First Lake and Second Lake, as well as the inlet to Rocky Lake.

Of the 25 outfalls identified on the map from Halifax Water in Appendix A, 24 were successfully located and 15 were sampled on the August 10 sampling event. Outfalls FLW-4, FLW-5, FLE-1, FLE-2, FLE-4 FLN-4, FLN-5, FLN-6, and FLN-7 had no flow and could not be sampled. FLN-8 had some flow but was too shallow for water quality measurement with the YSI probe. Cavalier Gully had flow too low for flow gauging.

During the August 18 sampling event, 16 outfalls were sampled; outfalls FLW-4, FLW-5, FLE-1, FLE-2, FLE-4, FLN-4, FLN-6, and FLN-7 had no flow and could not be sampled. FLN-5 had some flow but was too shallow for water quality measurement with the YSI probe and Cavalier Gully had flow too low for flow gauging.

Issues and Concerns

No major issues and concerns were identified from the August 10 sampling event. YSI probe measurements were not collected for the deep lake samples at First, Second and Rocky Lake but this was corrected for the August 18 sampling event.

Results for sample location FLN-8-1 had a string of algae present from the August 10 sampling event, which caused colonies to group together which restricted effective counting. This one sample was reported as "No Data – Overgrown Target."

On the August 10 sampling event, the FLW-3 location had a barrier set up in front of the culvert. After consultation with HRM staff, it was determined there was a water main break on First Lake, so these were put up in an attempt to limit what went into the lake. Samples were taken above and below the barrier, for comparison. The barrier was removed by the August 18 sampling event.

Preliminary Results

E. coli

The Guidelines for Canadian Recreational Water Quality report a geometric mean concentration of ≤ 200 CFU/100mL, and a maximum single sample of ≤ 400 CFU/100mL. *E. coli* concentrations detected in Second Lake and Rocky Lake were below these limits, along with in-lake samples for First Lake. However, there were several outfalls into First Lake that did have *E. coli* detections in exceedance of 200 CFU/100 mL, as did Kinsmen Beach. Comparison of *E. coli* results from the first three sampling events are presented in Table 1.

Progress Report

Table 1: First Lake *E. coli* results for June, July, and August 2022

Location ID	*E. coli* Results			
CBCL	June 15, 2022 (Wet) (CFU/100 mL)	July 14, 2022 (Dry) (CFU/100 mL)	August 10, 2022 (Dry) (CFU/100 mL)	August 18, 2022 (CFU/100 mL)
FLW-1	> 200	> 20000	140414	26877
FLW-2	> 200	> 20000	25338	9218
FLW-3	> 200	5377	Above Barrier 2388 Below Barrier 5334	>20000
FLW-6	> 200	1243	464	7804
FLW-7	> 200	107	446	2631
FLW-8	> 200	> 20000	305	3498
Kinsmen Beach A	135	84	292	100
Kinsmen Beach B	92	60	256	90
Kinsmen Beach C	63	60	276	86
Kinsmen Beach D	180	90	>400	178
Kinsmen Beach E	199	110	308	106
FLN-1	> 200	816	646	2547
FLN-2	> 200	14560	1103	5390
FLN-3	34	3	270	295
FLN-4	-	-	-	862
FLN-5	> 200	-	-	-
FLN-8	> 200	9691	138	515
FLS-3	> 200	13064	4873	265
FLS-4	> 200	> 20000	38719	39985
FLE-3	134	14	19	>200
FLE-5	192	140	>400	257
Inlet First Lake	> 200	328	167	>400
Outlet First Lake	28	13	6	183
Cavalier Gully	248	25	96	2195

This information was then superimposed onto a map from Google Earth, to determine where locations with *E. coli* exceedances were located around the lake. This is presented in Figure 1.

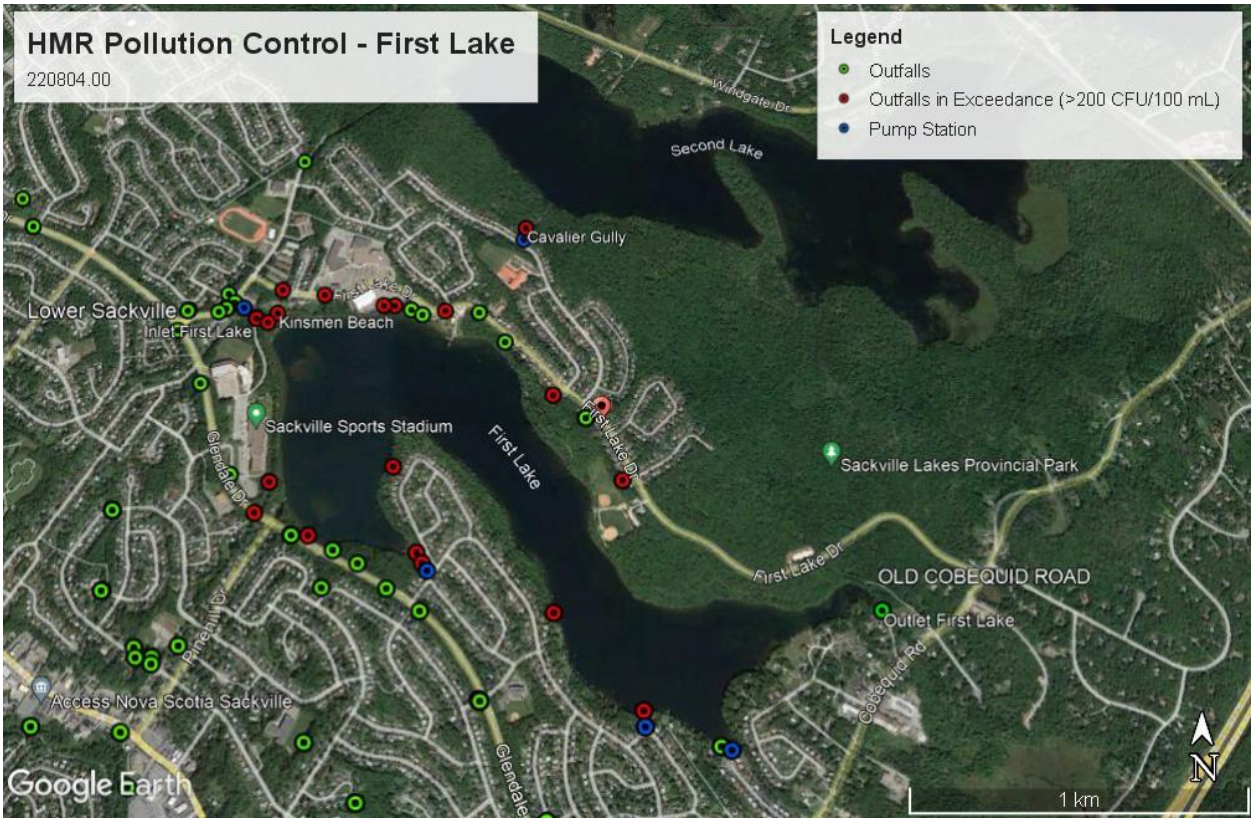

Figure 1: Outfalls and pump stations with *E. coli* exceedances around First Lake.

Microbial Source Tracking

Samples for Microbial Source Tracking (MST) were not taken during the August 10 or August 18 sampling events. MST samples will be taken during the September sampling event, in conjunction with a rain event.

Forecasted Activities and Schedule

Weather dependent, our next sampling event is scheduled for mid-September, when the beach season is over. This event will be a wet weather event and MST samples will be taken.

Conclusion

CBCL is pleased to provide this progress report and should you have any questions or comments, please do not hesitate to reach out to the undersigned.

Yours very truly,

CBCL Limited

Michael Brophy, M.A.Sc.
Process Specialist
E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water

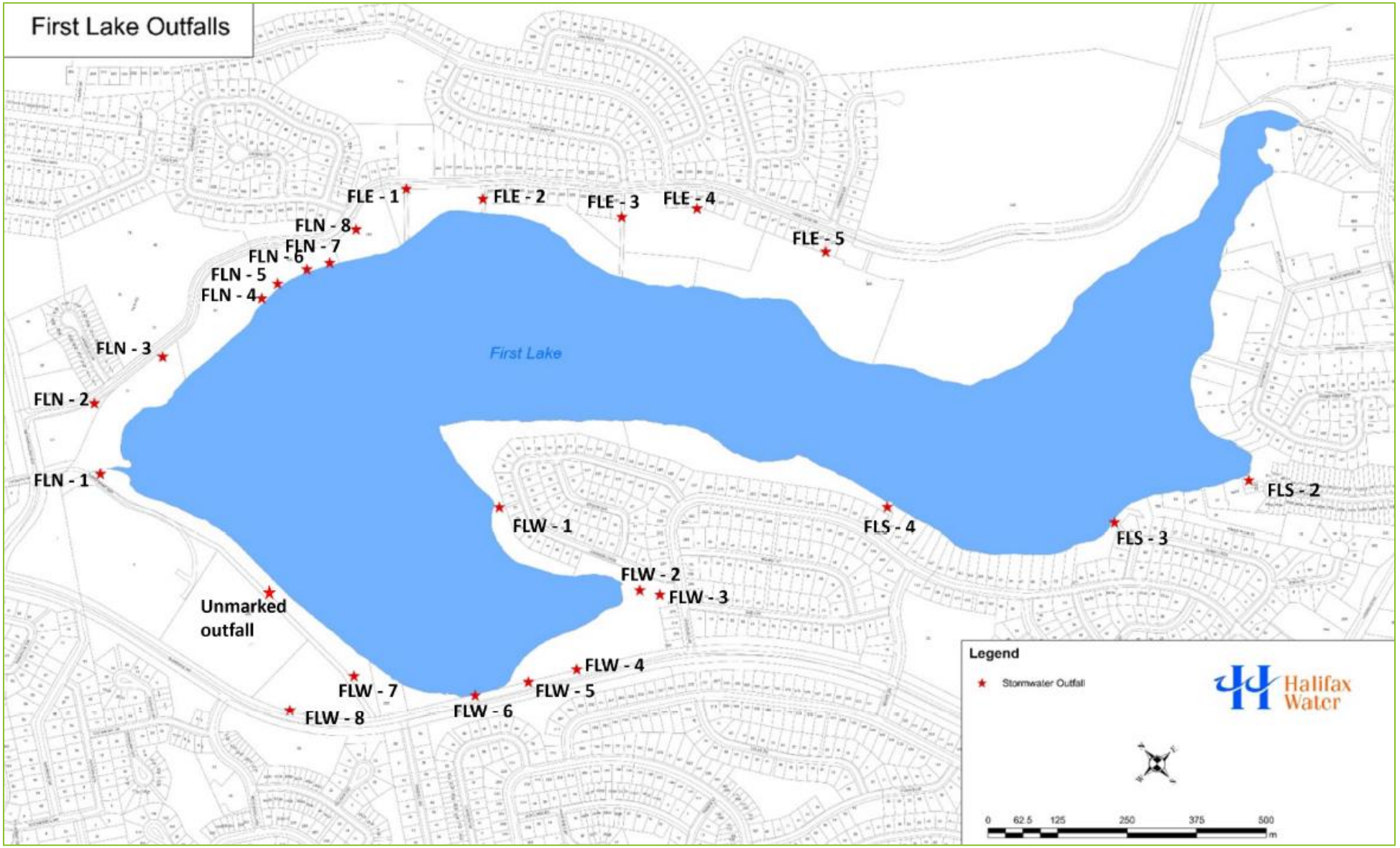

Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water

Progress Report

Date	October 7, 2022
Memo to	Emma Wattie (HRM)
Project name	220804.00 HRM Pollution Control – First Lake
Subject	Progress Report – September 2022
From	Michael Brophy
Copies to	HRM: Elizabeth Montgomery; Halifax Water: Joel Haley; CBCL: Melissa Fraser, Alyssa Chiasson, Zack Levisky

Preamble

The following progress report summarizes the activities completed in September 2022 for the HRM Pollution Control Study on First Lake. This report will include a summary of work completed, any noted issues or concerns, preliminary results, and forecasted activities and schedule for future work.

Summary of Work Completed

The fifth and final sampling event occurred on September 27, 2022. There was 29.8 mm of continuous precipitation between September 25-26, preceded by 24.3 mm of precipitation on the day of sampling, meeting the criteria for wet weather conditions.

Thirty-one (31) different locations were sampled throughout this sampling event. Samples were collected for *E. coli*, Microbial Source Tracking (MST), YSI probe measurements (pH, dissolved oxygen, temperature, specific conductance, and total dissolved solids), and water flow (where applicable). A total of 5 samples for *E. coli* were taken at each location to calculate the geometric mean.

Deep station and surface samples were collected for First Lake, Second Lake, and Rocky Lake along with the inlet and outlet of First Lake and Second Lake, as well as the inlet to Rocky Lake.

Of the 25 outfalls identified on the map from Halifax Water in Appendix A, 17 locations were sampled. Outfalls FLW-4, FLW-5, FLE-1, FLE-4, FLN-5, FLN-6, and FLN-7 had no flow and could not be sampled.

E.coli samples were collected for outfall FLN-8, however the flow was too shallow for water quality measurement with the YSI probe. *E.coli* samples were collected at Cavalier Gully and FLW-1, however flow was unable to be measured due to limited access.

Issues and Concerns

For the previous sampling events, AGAT was used as the accredited laboratory for *E.coli* analysis. Due to the aftermath of Hurricane Fiona, the laboratory did not have the ability to accept the samples and perform analysis. As a result, the samples were sent to Bureau Veritas (Bedford) for analysis.

To aid in determining the necessary dilutions for the *E.coli* analysis, the highest concentrations detected at each location from the previous sampling events were provided to ensure a reportable value was provided from the analysis. Unfortunately, even with the previous data to inform dilutions, there were still several samples that were reported above detection limits after the dilution.

Preliminary Results

E. coli

The Guidelines for Canadian Recreational Water Quality report a geometric mean concentration of ≤ 200 CFU/100mL, and a maximum single sample of ≤ 400 CFU/100mL. E*. coli* concentrations detected in Second Lake and Rocky Lake were below these limits, along with in-lake samples for First Lake. However, there were several outfalls into First Lake that did have *E. coli* detections in exceedance of 200 CFU/100 mL, as did Kinsmen Beach. Comparison of *E. coli* results from the five sampling events are presented in Table 1.

Progress Report

Table 1: First Lake *E. coli* results for the entire sampling program

Location ID	*E. coli* Results				
CBCL	June 15, 2022 (Wet) (CFU/100 mL)	July 14, 2022 (Dry) (CFU/100 mL)	August 10, 2022 (Dry) (CFU/100 mL)	August 18, 2022 (Dry) (CFU/100 mL)	September 27, 2022 (Wet) CFU/100 mL)
FLW-1	> 200	> 20000	140414	26877	>25000
FLW-2	> 200	> 20000	25338	9218	1715
FLW-3	> 200	5377	Above Barrier 2388 Below Barrier 5334	>20000	>25000
FLW-6	> 200	1243	464	7804	2442
FLW-7	> 200	107	446	2631	6871
FLW-8	> 200	> 20000	305	3498	9177
Kinsmen Beach A	135	84	292	100	>500
Kinsmen Beach B	92	60	256	90	>500
Kinsmen Beach C	63	60	276	86	>500
Kinsmen Beach D	180	90	>400	178	>500
Kinsmen Beach E	199	110	308	106	>500
FLN-1	> 200	816	646	2547	927
FLN-2	> 200	14560	1103	5390	>25000
FLN-3	34	3	270	295	52
FLN-4	-	-	-	862	358
FLN-5	> 200	-	-	-	-
FLN-8	> 200	9691	138	515	10589
FLS-2	22	3	9	16	196
FLS-3	> 200	13064	4873	265	>25000
FLS-4	> 200	> 20000	38719	39985	5864
FLE-2	193	27	-	-	>500
FLE-3	134	14	19	>200	>2500
FLE-5	192	140	>400	257	>500
Inlet First Lake	> 200	328	167	>400	>500
Outlet First Lake	28	13	6	183	121
Cavalier Gully	248	25	96	2195	3106

The *E.coli* sample results were then superimposed onto a map from Google Earth, to illustrate where locations with *E. coli* exceedances were located around First Lake. This is presented in Figure 1.

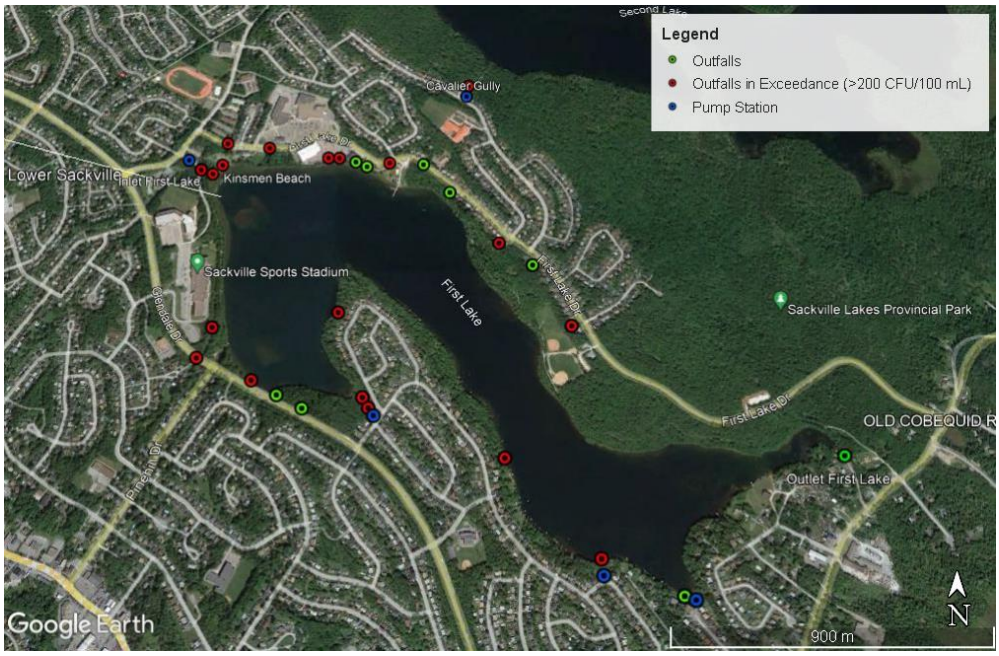

Figure 1: Outfalls and pump stations with *E. coli* exceedances around First Lake.

Microbial Source Tracking

Samples for Microbial Source Tracking (MST) were taken during the September 27 sampling event. The previous sample collection for MST was during the first sampling event on June 15. MST results from the September 27 sampling event are expected next week from the Centre for Water Resources Studies laboratory at Dalhousie University, and will be provided once received.

Forecasted Activities and Schedule

All fieldwork activities have now been completed for the HRM First Lake pollution control study. The next steps include completing the water modelling and preparing the draft report with the findings.

Progress Report

Conclusion

CBCL is pleased to provide this progress report and should you have any questions or comments, please do not hesitate to reach out to the undersigned.

Yours very truly,

CBCL Limited

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Process Specialist
E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water

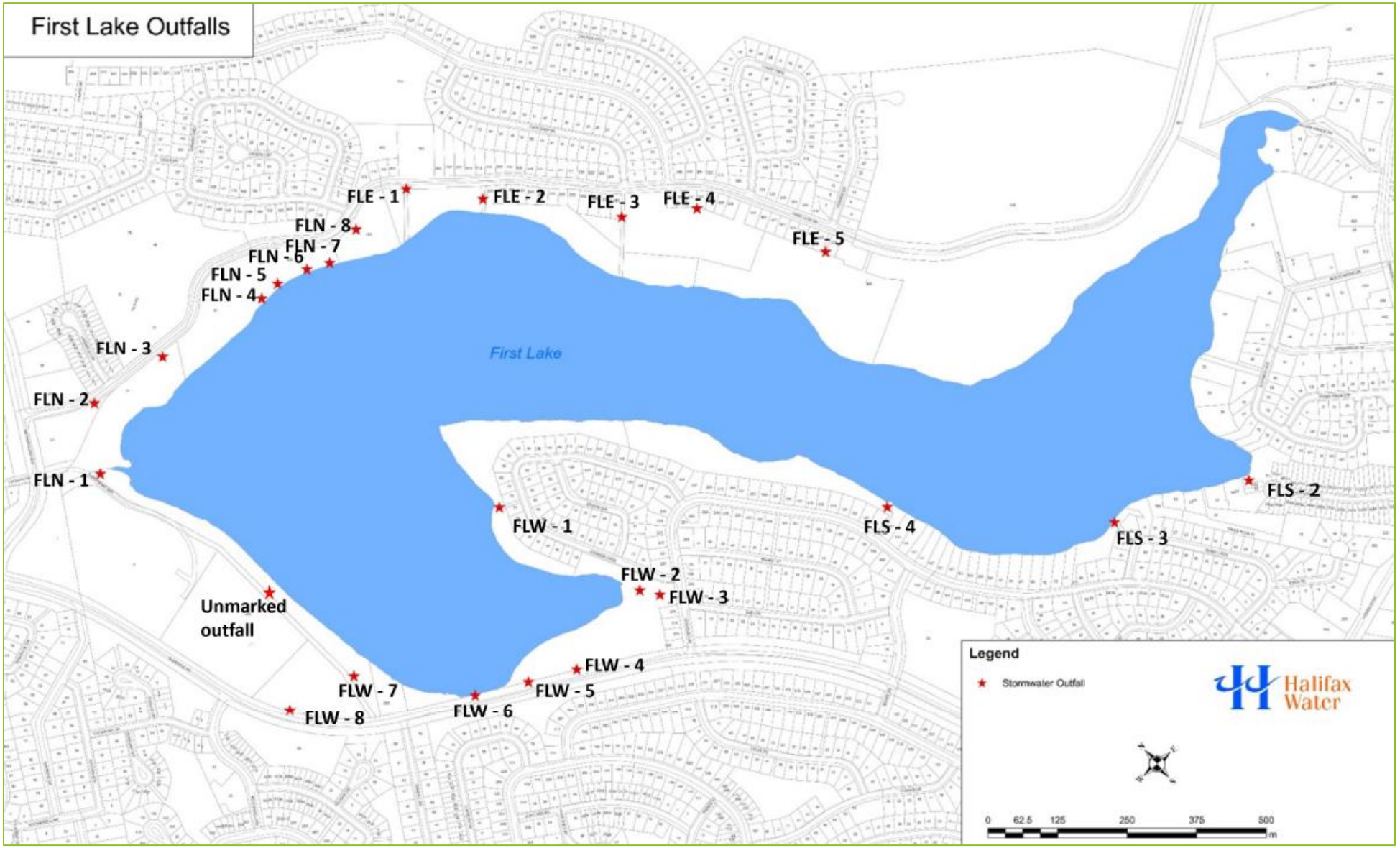

Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water

Table 1: *E. coli* and MST Data for September 27, 2022

Sample Name	September 27, 2022				
	E. Coli (CFU/100 mL)	Human HF183 markers (Log copies/100 mL)	Human CrAssphage markers (Log copies/100 mL)	Avian (bird) markers (Log copies/100 mL)	Dog markers (Log copies/100 mL)
FLN-1	927	4.45	6.27	2.11	<1.1
FLN-2	>25000	6.50	4.83	2.39	2.74
FLN-3	52	<1.1	<2.83	3.07	<1.1
FLN-4	358	3.66	4.09	2.62	<1.1
FLN-8	10589	6.03	7.29	2.51	3.21
FLE-2	>500	3.06	2.83	3.10	4.70
FLE-3	>2500	3.48	3.03	1.80	3.91
FLE-5	>500	5.70	4.83	1.26	4.22
FLW-1	>25000	6.68	5.98	2.28	<1.1
FLW-2	1715	5.92	5.66	2.31	2.47
FLW-3	>25000	4.72	6.22	2.56	<1.1
FLW-6	2442	4.36	5.36	2.21	<1.1
FLW-7	6871	<1.1	7.90	2.64	<1.1
FLW-8	9177	5.36	8.34	2.17	3.45
FLS-2	196	<1.1	<2.83	2.11	<1.1
FLS-3	>25000	6.79	7.32	2.71	2.70
FLS-4	5864	6.72	6.25	2.21	<1.1
First Lake (Deep)	164	<1.1	<2.83	2.04	<1.1
First Lake (Shallow)	165	<1.1	<2.83	1.98	<1.1
Rocky Lake (Deep)	14	<1.1	<2.83	1.87	<1.1
Rocky Lake (Shallow)	15.3	<1.1	<2.83	1.38	<1.1
Second Lake (Deep)	40	<1.1	<2.83	1.81	<1.1
Second Lake (Shallow)	30	3.75	3.83	1.81	<1.1
Inlet of First Lake	>500	4.21	6.17	1.65	<1.1
Outlet Of First Lake	121	3.80	4.53	2.19	<1.1
Inlet of Second Lake	66	<1.1	<2.83	2.49	<1.1
Outlet of Second Lake	87	<1.1	<2.83	2.38	<1.1
Inlet of Rocky Lake	113	<1.1	4.45	2.75	<1.1
Kinsmen Beach	>500	5.20	5.68	2.78	3.32
Cavalier Gully	3106	2.70	4.10	2.67	3.38
Unmarked Outfall	18	<1.1	<2.83	4.06	<1.1

*Samples reported as < 1.1 log copies/100 mL indicate a non-detect.

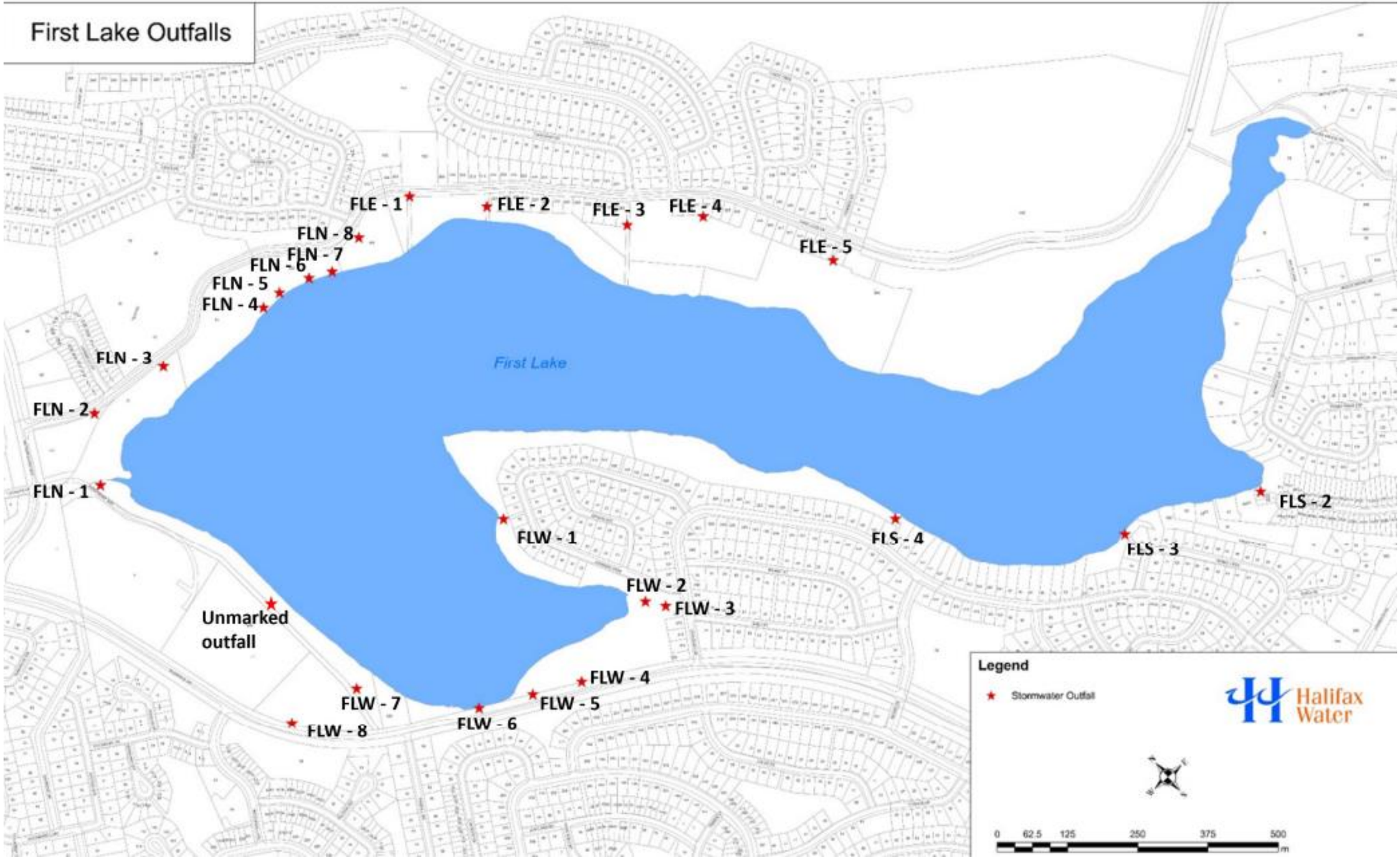

Figure 1: Map of First Lake


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