HRM Pollution Source Control Study First Lake, Lower Sackville

Final Report



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Project No. 220804.00





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

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16

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Contents

1 Bac	kgrou	nd1
1.1	Introdu	ction 1
2 Me	thodol	ogy3
2.1	Locatio	n of Work
	2.1.1	Sample Locations
2.2	Samplir	ng Events
2.3	Sample	Collection
	2.3.1	In-situ sampling9
	2.3.2	Flow Monitoring9
	2.3.3	<i>E. coli</i> Analysis
	2.3.4	MST Analysis
2.4	Commu	inication
3 Fiel	d Prog	ram Results
3.1	Precipit	ation Data12
3.2	Flow Ra	te Data13
3.3	Pollutio	n Loading Study – <i>E. coli</i>
	3.3.1	Kinsmen Beach <i>E. coli</i> Results15
	3.3.2	Deep Lake <i>E. coli</i> Results16
	3.3.3	Stormwater Outfall Analysis16
	3.3.4	<i>E. coli</i> Loading Rates
3.4	Microbi	al Source Tracking Study18
3.5	In-situ V	Vater Monitoring
4 Wa	tershe	d Modelling 25
4.1	Approa	ch25
4.2	Hydrold	gic Model
	4.2.1	Watershed Land Use25
	4.2.2	PCSWMM Model Inputs26
4.3	Event N	lean Concentration Analysis
	4.3.1	Runoff Depth Determination29
	4.3.2	Total Event Mean Concentration Calculation

4.4	Annual	Concentration Analysis	. 31
	4.4.1	Annual Concentration Model Inputs	32
	4.4.2	Annual Concentration Calculation	32
5 Red	comme	endations to Mitigate Bacterial Loading	33
5.1	Discuss	ion on Sources of Contaminants	. 33
5.2	Best Pr	actices/Methods for Reducing Stormwater Contamination	. 35
5.3	Recom	mendations	. 39

Appendices

	Dealer and		Dette
Α	Background	Reference	Review

- B In-situ Water Quality Results
- C Third-Party Accredited Laboratory Certificates
- D Project Memos



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.



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 <i>E. coli</i> 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.

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)	

Table 3: Sample Locations as used for Sample Identification

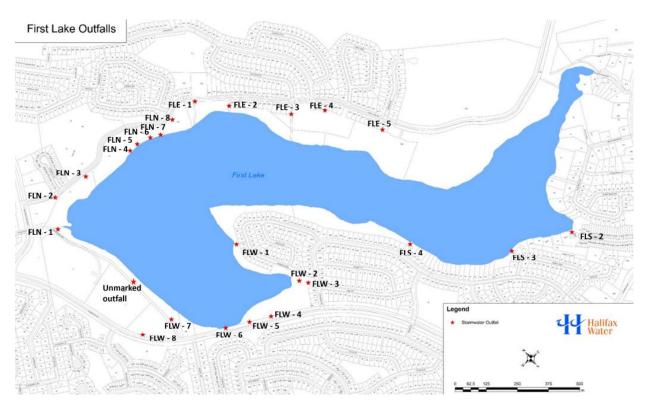


Figure 2: Stormwater Outfalls Located on First Lake

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.

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 Na₂SO₃ 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. For sampling events that did not require MST analysis, water samples were taken directly with the sterile plastic bottles containing Na₂SO₃ 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.



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.

Table 5: Summary of Flow Measurement Methods

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 dogspecific marker (dogmt) which targets dog mitochondrial DNA was used to assess dogassociated 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.

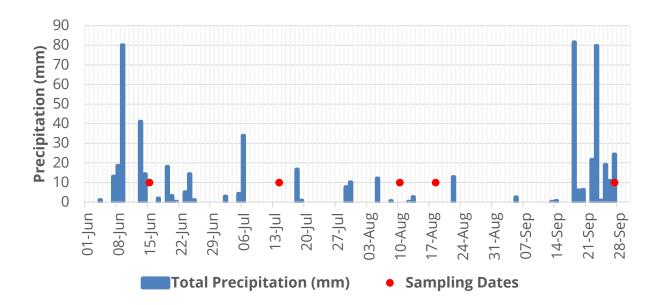


Figure 3: Precipitation Data During Study Period

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.

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

Table 6: Flow Rate Data by Sample Location

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.

	<i>E. coli</i> Results (CFU/100 mL)**						
Location ID	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		

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



Location ID	<i>E. coli</i> 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 \leq 200 CFU/100 mL, and a maximum single sample of \leq 400 CFU/100 mL for primary contact. Detailed results from the Kinsmen Beach samples are presented in Table 8.



Table 8: E.	<i>coli</i> Results for	or Kinsmen	Beach
	con neo area		Deach

Kinsmen Beach	<i>E. coli</i> Results (CFU/100 mL)						
Kinshieli beach	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 \leq 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 10⁴ 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 10⁴ 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.



Location ID	<i>E. coli</i> Loading (CFU/day)						
Location ID	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		

Table O. E	<i>coli</i> logding	Datas h	Compling	Location
Table 9. L.	coli Loading	nales by	/ Samping	LUCATION

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.	<i>coli</i> Results
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June 2022				September 27, 2022						
Sample	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



HRM Pollution Source Control Study – First Lake, Lower Sackville 19

MST Results - June 2022

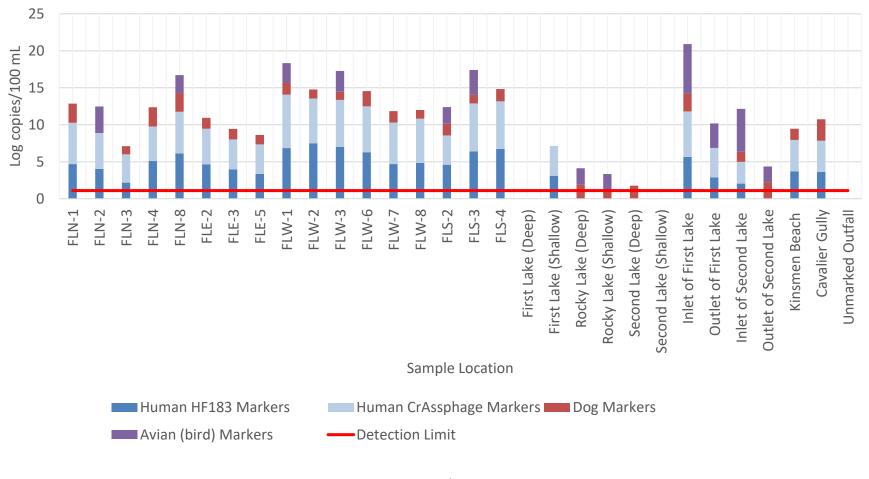


Figure 4: MST Results - June 2022



25 20 Log copies/100 mL 15 10 5 0 FLW-6 FLW-3 FLN-3 FLN-4 FLN-8 FLE-2 FLE-5 FLW-1 FLW-8 FLS-2 FLS-3 FLN-1 FLN-2 FLE-3 FLW-2 FLS-4 Outlet of Second Lake Cavalier Gully FLW-7 Inlet of First Lake **Outlet of First Lake** Inlet of Second Lake Inlet of Rocky Unmarked Outfall First Lake (Deep) First Lake (Shallow) Rocky Lake (Deep) Rocky Lake (Shallow) Second Lake (Deep) Second Lake (Shallow) Kinsmen Beach Sample Location Human HF183 Markers — Human CrAssphage Markers — Dog Markers — Avian (bird) Markers — Detection Limit

MST Results - September 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

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

Table 11: MST % Detection of Human, D	og or Avian Markers
---------------------------------------	---------------------

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. 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 10⁴ 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.

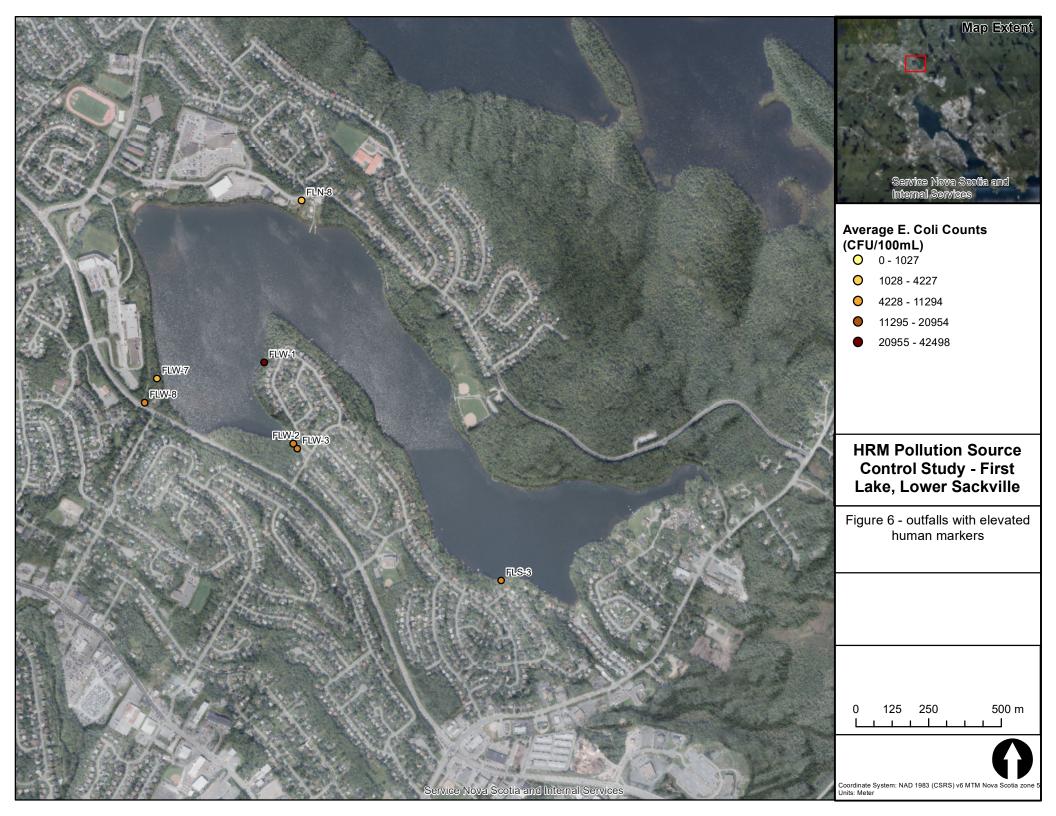
When locations are identified as high in *E. coli* concentration and have human as the dominant fecal source markers, there is evidence to suggest domestic wastewater is present in the stormwater system (Staley et al., 2016). Therefore, it is recommended that these locations be the focus areas for repairs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

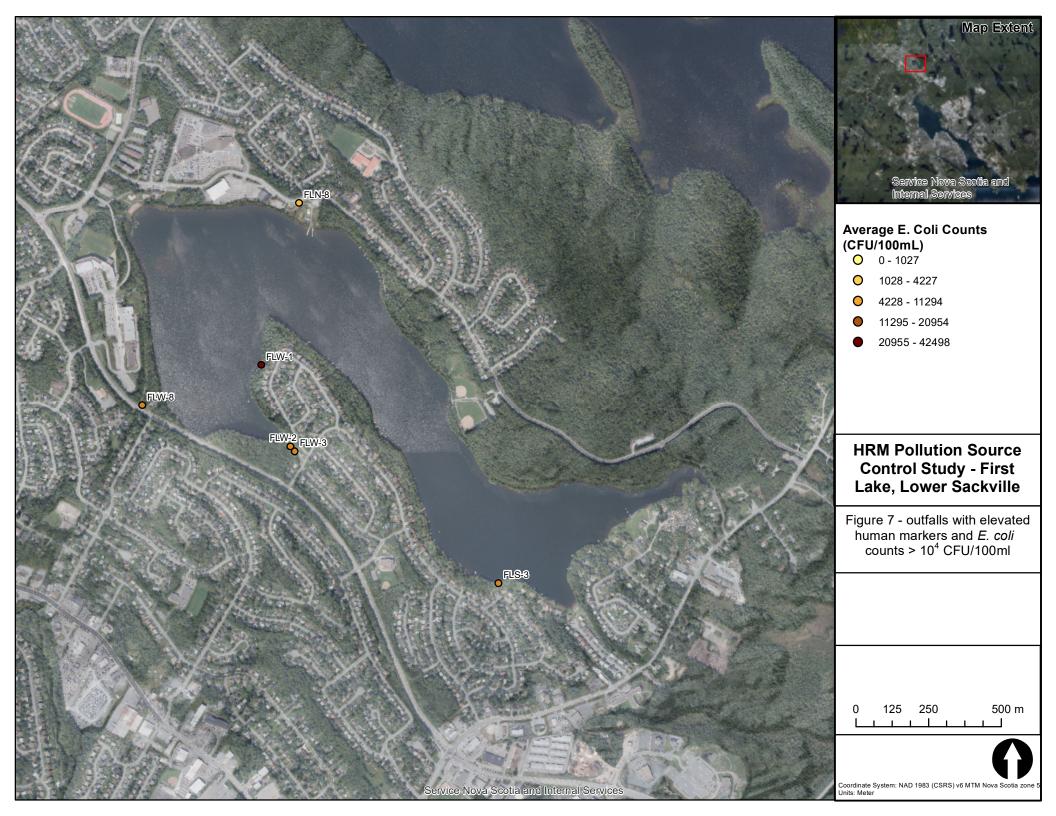
3.5 In-situ Water Monitoring

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.





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.

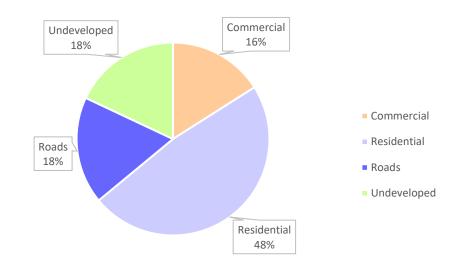


Figure 8: Land Use Breakdown of the Watershed Contributing to the First Lake

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.



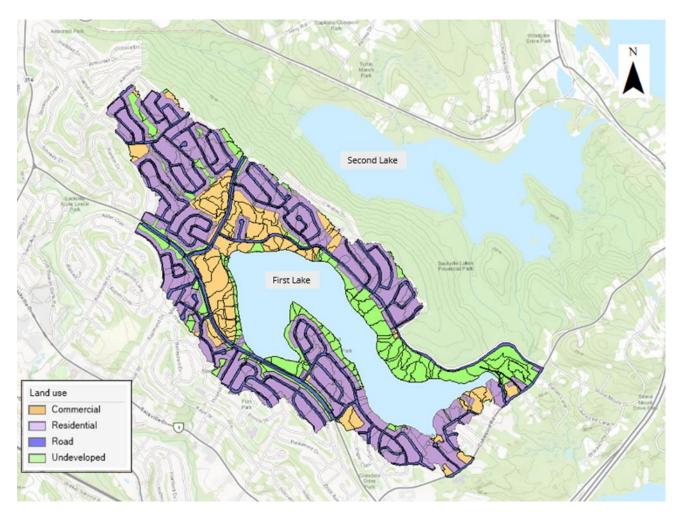


Figure 9: Contributing Watershed to First Lake Based on Land Use

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.

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

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 (m²) 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.

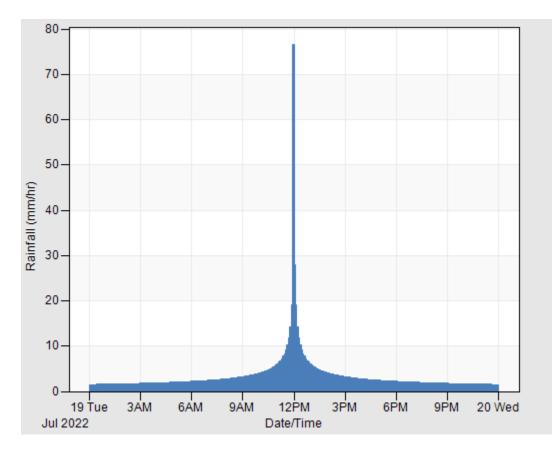


Figure 10: Chicago Rainfall Distribution for Shearwater RCS Station based on the 1 in 2-year IDF curves (dates shown represent simulation dates)

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.



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

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

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.

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 <i>E. coli</i> Load (CFU)
Commercial	1.47 x 10 ¹²
Residential (Low to High-Density)	5.35 x 10 ¹²
Roads	0.59 x 10 ¹²
Undeveloped	1.96 x 10 ¹²
Total	9.36 x 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 (m²) 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 <i>E. coli</i> Load (CFU)
Commercial	25.7 x 10 ¹²
Residential	84.13 x 10 ¹²
Roads	9.12 x 10 ¹²
Undeveloped	17.58 x 10 ¹²
Total	136.55 x 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 nonpoint 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 nonexistent. 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)

	I Stormwater BMP Database: 2020 Summary Statistics)						
General Category	Source/Activity						
Municipal Sanitary	Sanitary sewer overflows (SSOs)						
Infrastructure (piped)	Leaky sewer pipes (Exfiltration)						
	Illicit sanitary connections to storm sewers						
	WWTPs (if inadequate treatment or upsets)						
Other Human Sanitary Sources	Leaky or failing septic systems (may include excessive density of systems in one area or temporary overuse of the systems)						
(some also attract	Homeless encampments or other human outdoor sources						
urban wildlife)	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	Rodents/vectors (rats, raccoons, squirrels)						
(naturally occurring	Birds (gull, geese, ducks, pigeons, swallows, etc.)						
and human attracted)	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-	Power washing						
stormwater	Excessive irrigation/overspray						
discharges	Car washing						
	Pools/hot tubs						
	Reclaimed water/greywater (if not properly managed)						
Stormwater	Illegal dumping						
Infrastructure	Illicit sanitary connections						
	Leaky sewer pipes						
	Biofilms/regrowth						
	Decaying plant matter						
Natural Open	Wildlife populations						
Space/Forested Areas	Grazing						
	Natural area parks, off-leash areas						
Other Naturalized	Decaying plants/algae, sand, soil						
Sources							

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.

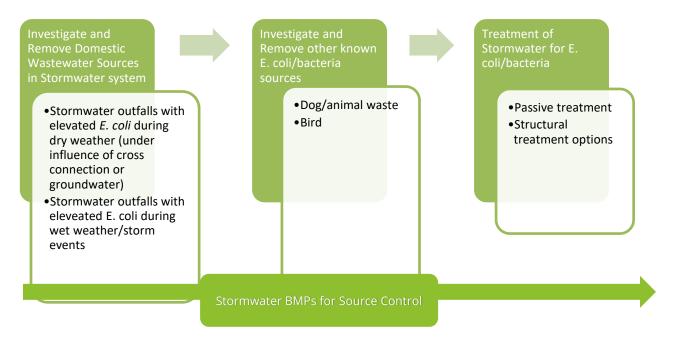
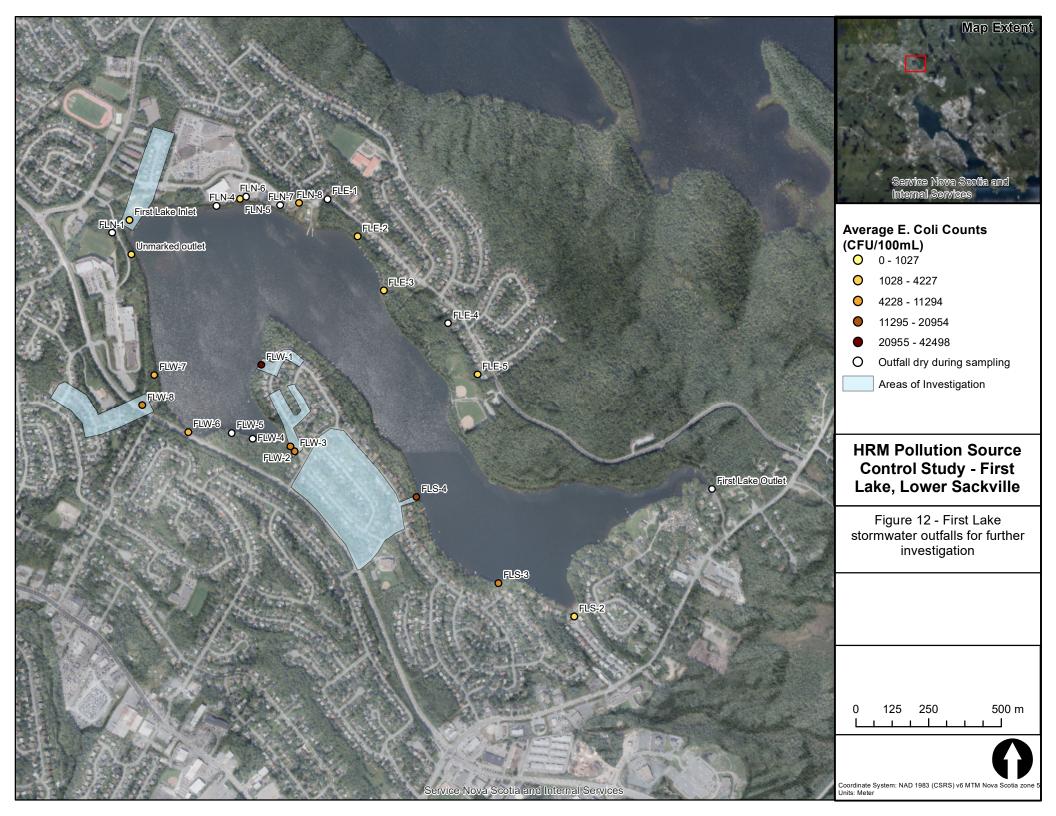


Figure 11: Approach to Reducing *E. coli* in Stormwater Collection System

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.





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.

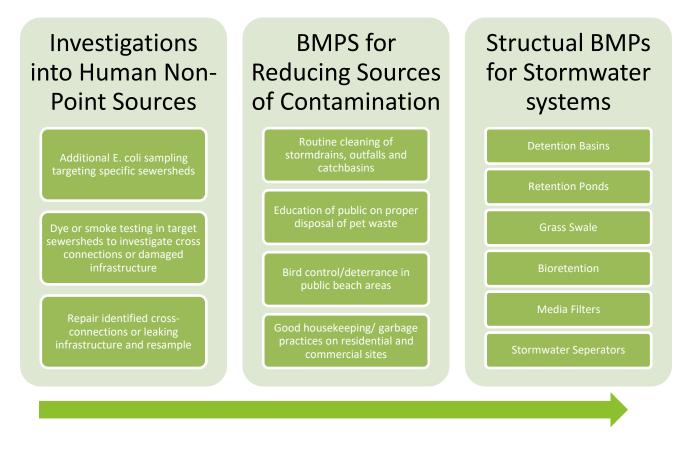


Figure 13: Summary of Options for Dealing with *E. coli* in Stormwater Systems

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).

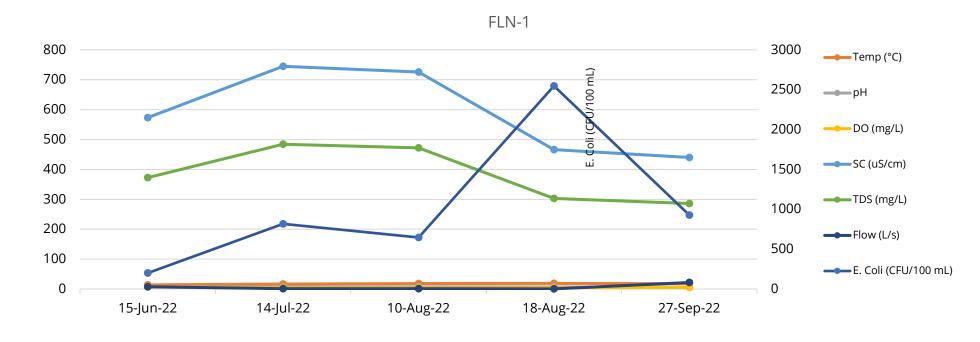
This research highlighted that First Lake was naturally variable and productive before watershed development, resulting in it being naturally susceptible to water quality degradation. This dense watershed development has resulted in increased nutrient input to the lake, leading to increased productivity 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

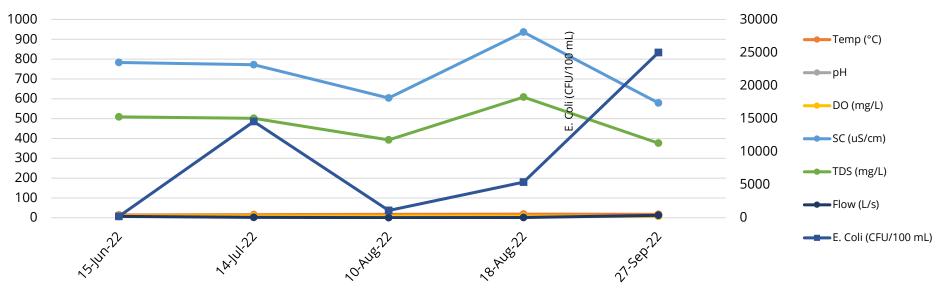


FLN-1	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep	
<i>E. coli</i> (CFU/100 mL)	200	816	646	2547	927	
Temp (°C)	13.8	16.4	18.1	18.7	17.7	
рН	7.15	7.16	7.32	7	5.36	
DO (mg/L)	7.03	3.71	3.65	3.91	6.03	
SC (uS/cm)	573	745	726	466.3	440	
TDS (mg/L)	372.45	484.25	471.9	303.095	286	
Flow (L/s)	7.47	0.91	0.92	0.44	21.72	

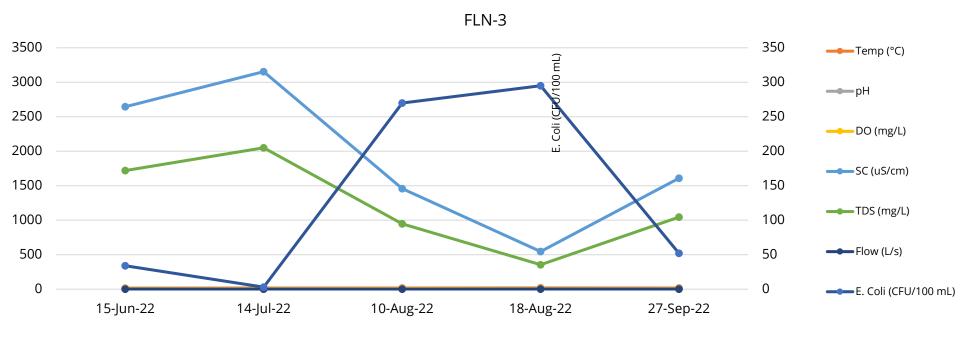


FLN-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	14560	1103	5390	25000
Temp (°C)	14.3	15.8	17.7	18.4	17.2
рН	7.83	8.08	8.12	8.02	7.33
DO (mg/L)	9.88	8.9	8.61	8.26	8.19
SC (uS/cm)	783	772	604	936	578.9
TDS (mg/L)	508.95	501.8	392.6	608.4	376.285
Flow (L/s)	6.93	1.95	0.62	0.98	12.27

FLN-2

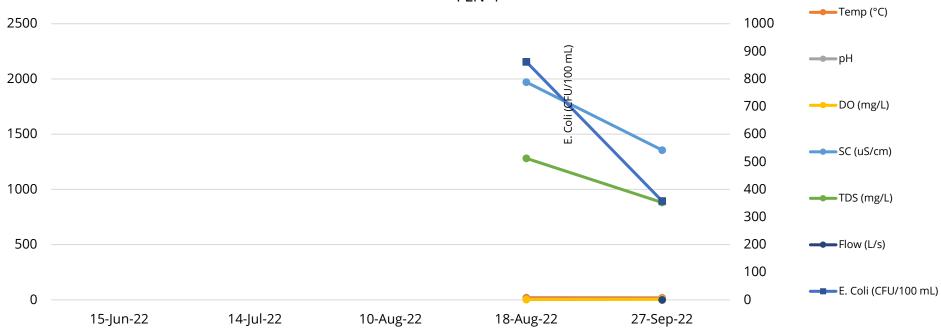


FLN-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep	
<i>E. coli</i> (CFU/100 mL)	34	3	270	295	52	
Temp (°C)	15.9	16.9	18.4	18.8	16.8	
рН	7.3	7.47	7.57	7.27	7.01	
DO (mg/L)	6.28	4.62	6.05	5.83	3.51	
SC (uS/cm)	2646	3154	1458	546	1609	
TDS (mg/L)	1719.9	2050.1	947.7	354.9	1045.85	
Flow (L/s)	0.06	0.003	0.004	0.012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



FLN-4

FLN-4	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep	
<i>E. coli</i> (CFU/100 mL)	-	-	-	862	358	
Temp (°C)	-	-	-	19.8	18.6	
рН	-	-	-	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	

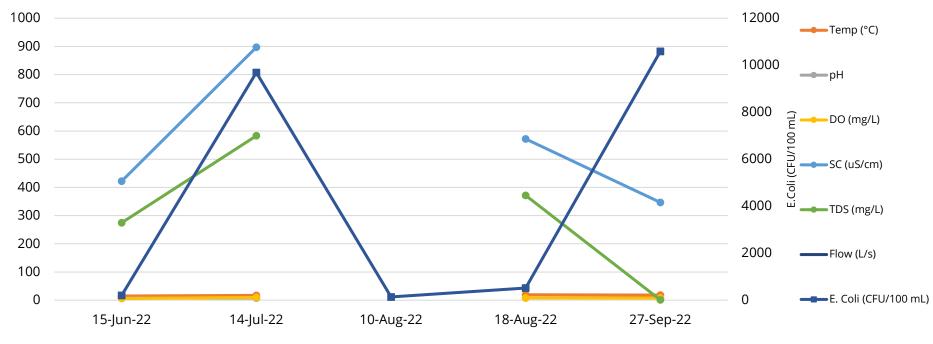


FLN-5	
-------	--

FLN-5	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep	2000 —	•			
<i>E. coli</i> (CFU/100 mL)	200	-	-	-	-	1800 —				
						1600 —	•			
Temp (°C)	14.7	-	-	-	-	1400 —	•			
рН	7.21	-	-	-	-	1200 — 1000 —				
DO (mg/L)	6.05	-	-	-	-	800 —				
						600 —				
SC (uS/cm)	1883	-	-	-	-	400 —				
TDS (mg/L)	1223.95	-	-	-	-	200				
Flow (L/s)	0.60	-		-		0 —	•			
、 <i>,</i> ,							15-Jun-22	14-Jul-22	10-Aug-22	

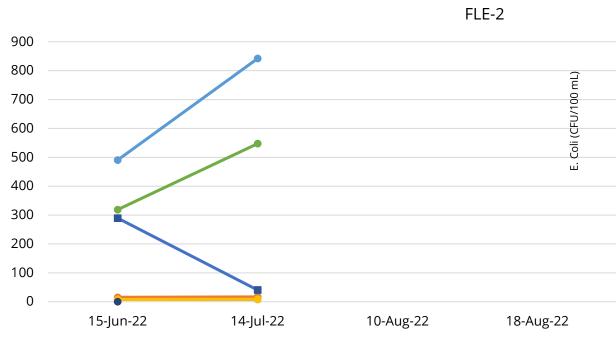
FLN-8

FLN-8	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	9691	138	515	10589
Temp (°C)	14.8	16.7	-	19.3	18
рН	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		-		

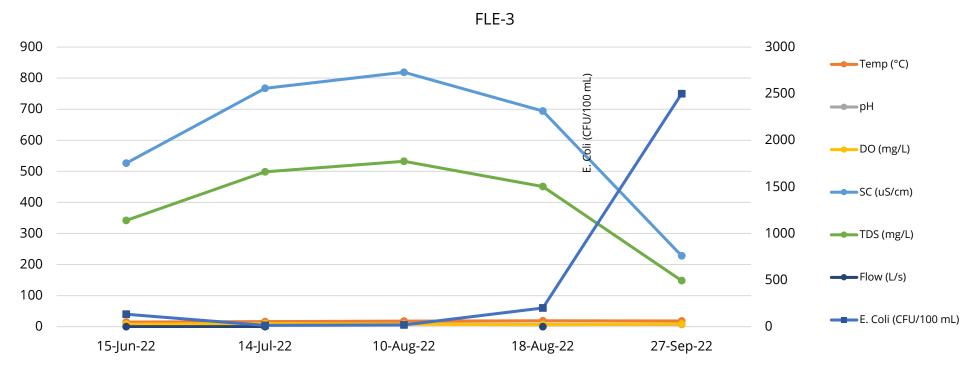


	250	─── Temp (°C)
	200	→ pH → DO (mg/L)
	150	SC (uS/cm)
	100	TDS (mg/L)
	50	Flow (L/s)
27-Sep-22	- 0	E. Coli (CFU/100 mL)

FLE-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	193	27	-	-	500
Temp (°C)	15.4	16.8	-	-	18.4
рН	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		-	-	

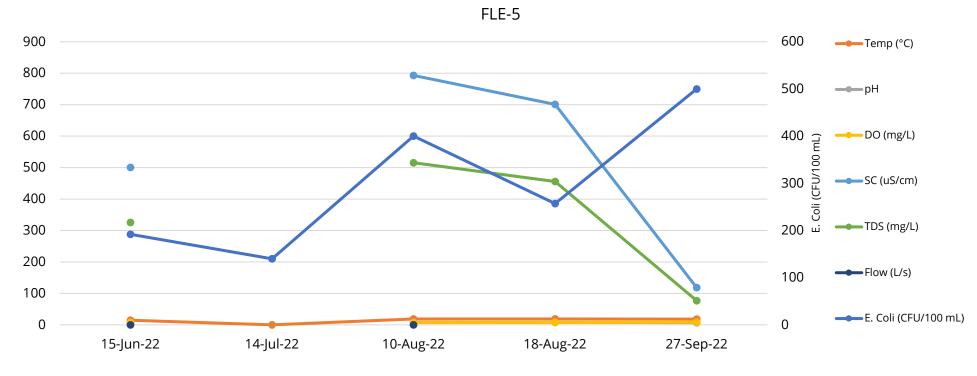


FLE-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	134	14	19	200	2500
Temp (°C)	14.9	16.6	17.9	19	18.2
рН	7.73	7.38	8.22	7.53	7.31
DO (mg/L)	8.12	10.04	8.3	6.14	8.51
SC (uS/cm)	526	767	819	694	227.9
TDS (mg/L)	341.9	498.55	532.35	451.1	148.135
Flow (L/s)	0.09	0.03	-	0.10	-

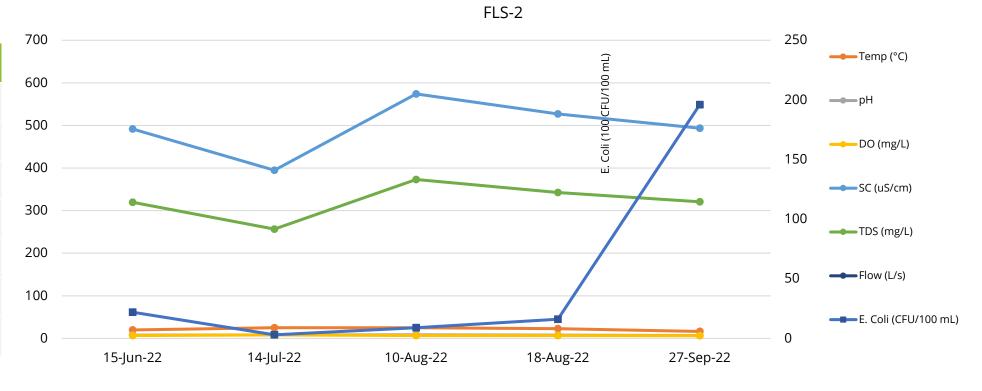


	600	Temp (°C)
	500	── pH
	400	DO (mg/L)
	300	SC (uS/cm)
	200	
•	100	Flow (L/s)
2 7-Sep-22	0	—■— E. Coli (CFU/100 mL)

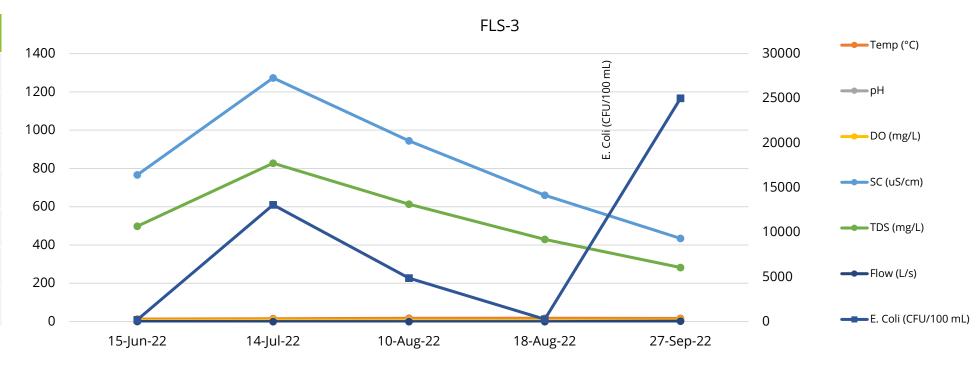
FLE-5	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	192	140	400	257	500
Temp (°C)	14.5	-	18.8	18.8	18.4
рН	7.31	-	8	7.85	7.05
DO (mg/L)	7.46	-	7.17	7.57	8.52
SC (uS/cm)	500.6	-	793	701	118.3
TDS (mg/L)	325.39	-	515.45	455.65	76.895
Flow (L/s)	0.09	-	0.02	-	-



FLS-2 27-Sep 14-Jul 15-Jun 10-Aug 18-Aug *E. coli* (CFU/100 mL) 22 3 9 16 196 Temp (°C) 20 24.9 25 23 16.3 рΗ 7.79 7.85 8.24 8.45 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) --_ _ -



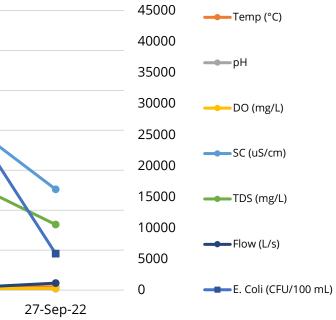
FLS-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	13064	4873	265	25000
Temp (°C)	13.2	14.9	17.3	17.7	16.7
рН	7.32	7.79	8.16	7.8	6.99
DO (mg/L)	6.78	7.72	6.35	5.73	7.88
SC (uS/cm)	766	1273	944	660	434.4
TDS (mg/L)	497.9	827.45	613.6	429	282.36
Flow (L/s)	0.29	0.10	0.11	0.13	2.41



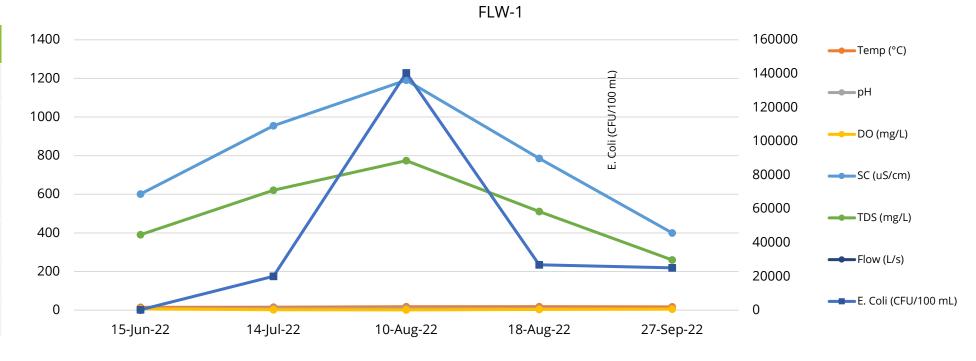
FLS-4

1400				<u>.</u>
1200				E. Coli (CFU/100 mL)
1000				Coli (CF
800		1		ш́
600				
400				
200	/			
0			•	
-	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22

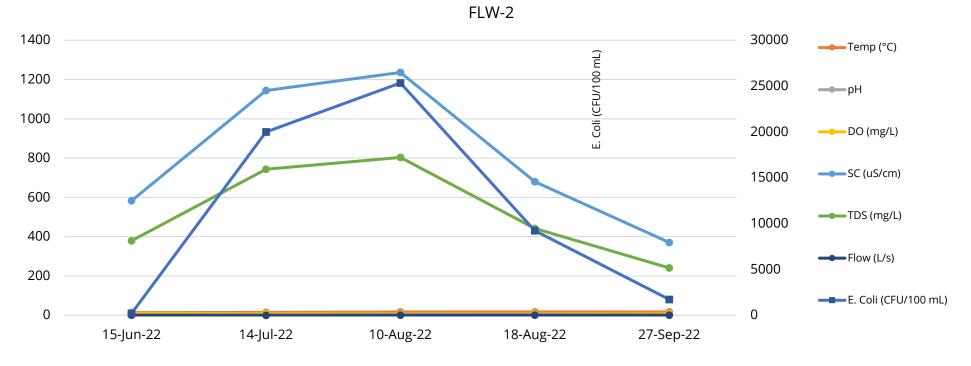
FLS-4	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	20000	38719	39985	5864
Temp (°C)	12.7	13.6	15.2	16.2	16.7
рН	7.46	7.76	7.96	7.62	6.97
DO (mg/L)	8.81	8.94	8.45	7.52	8.63
SC (uS/cm)	788	1210	1328	1022	504.7
TDS (mg/L)	512.2	786.5	863.2	664.3	328.055
Flow (L/s)	0.13	0.00	0.10	0.19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



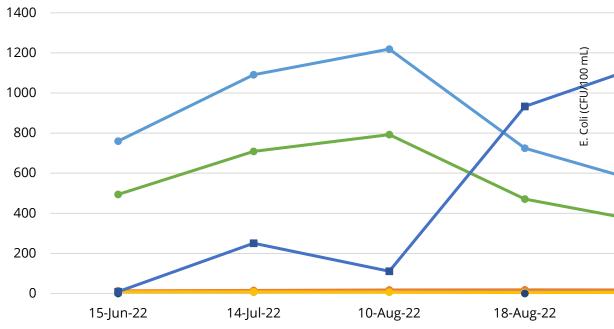
FLW-1	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	20000	140414	26877	25000
Temp (°C)	14.5	15.2	17.4	18	16.7
рН	7.44	7.39	7.65	7.43	6.5
DO (mg/L)	6.45	2	1.14	3.3	5.54
SC (uS/cm)	601	955	1191	786	400
TDS (mg/L)	390.65	620.75	774.15	510.9	260
Flow (L/s)	0.24	-	-	-	-



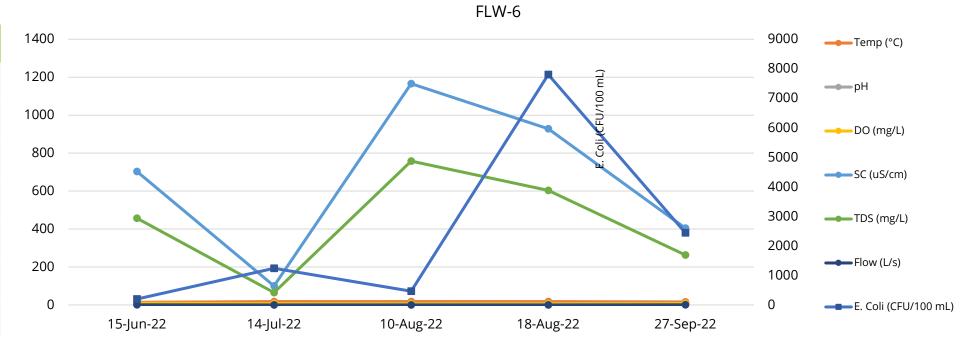
FLW-2	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	20000	25338	9218	1715
Temp (°C)	13.2	14.4	16.4	17	16.9
рН	7.53	7.69	7.92	7.59	6.83
DO (mg/L)	8.91	6.63	5.44	5.26	7.16
SC (uS/cm)	583	1144	1236	680	370.2
TDS (mg/L)	378.95	743.6	803.4	442	240.63
Flow (L/s)	0.14	0.01	0.02	0.03	0.32



FLW-3	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	5377	2388	20000	25000
Temp (°C)	13.5	15.5	17.9	18.4	17.5
рН	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	-



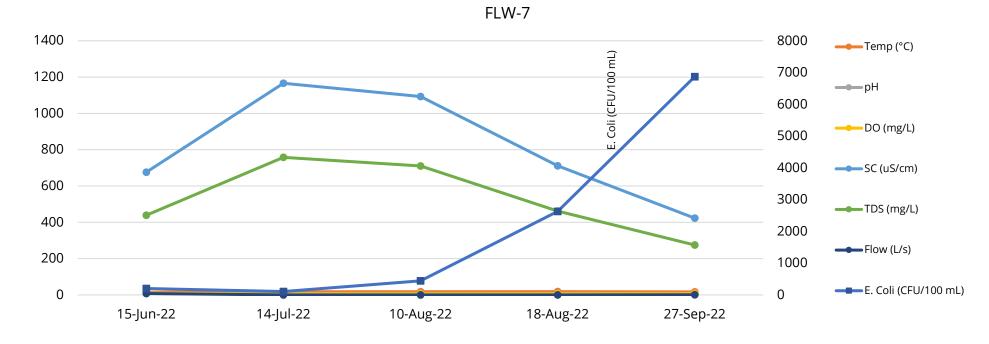
FLW-6 14-Jul 15-Jun 10-Aug 18-Aug 27-Sep *E. coli* (CFU/100 mL) 2442 1243 464 200 7804 Temp (°C) 13.9 17.7 17.2 17.3 16 рΗ 7.43 7.6 7.75 7.55 8.63 DO (mg/L) 6.65 5.5 7.26 9.51 5.76 SC (uS/cm) 703 100 1166 928 404.7 TDS (mg/L) 456.95 65 757.9 603.2 263.055 Flow (L/s) 0.67 0.02 0.33 0.01 0.18



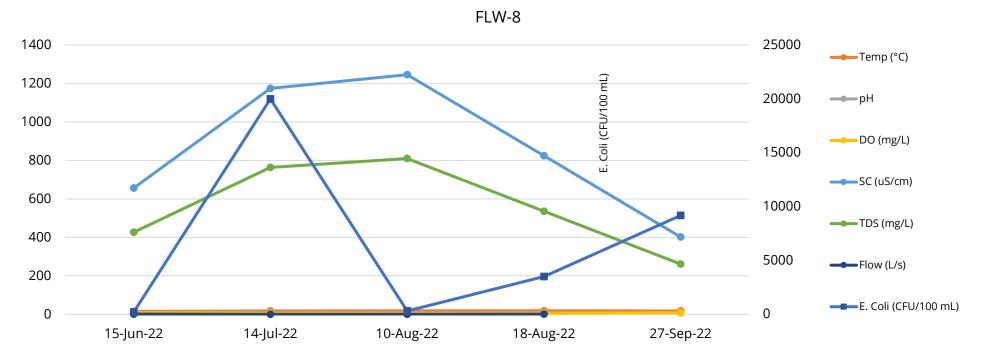
FLW-3

	30000	─── Temp (°C)
	25000	—— рН
	20000	── DO (mg/L)
	15000	SC (uS/cm)
	10000	TDS (mg/L)
	5000	Flow (L/s)
27-Sep-22	0	━━━ E. Coli (CFU/100 mL)

FLW-7	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	107	446	2631	6871
Temp (°C)	14.5	17.7	17.8	18.2	16.6
рН	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

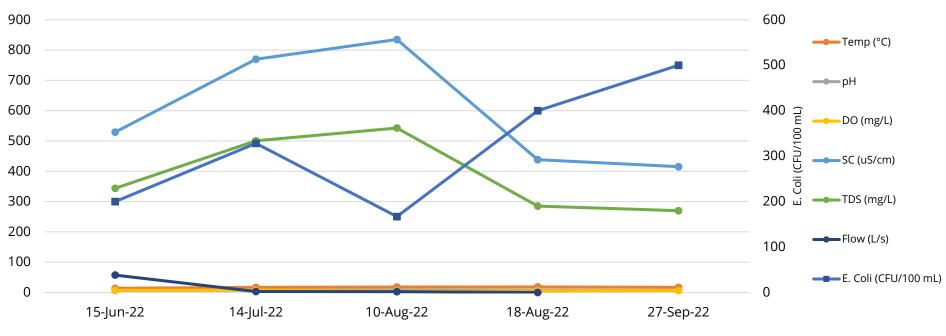


FLW-8	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	20000	305	3498	9177
Temp (°C)	15.1	17.7	17.8	18.3	16.9
рН	7.66	7.73	7.41	7.17	7.1
DO (mg/L)	8.65	5.63	5.12	4.77	7.88
SC (uS/cm)	656	1175	1246	824	401.6
TDS (mg/L)	426.4	763.75	809.9	535.6	261.04
Flow (L/s)	1.03	0.07	0.01	0.39	-



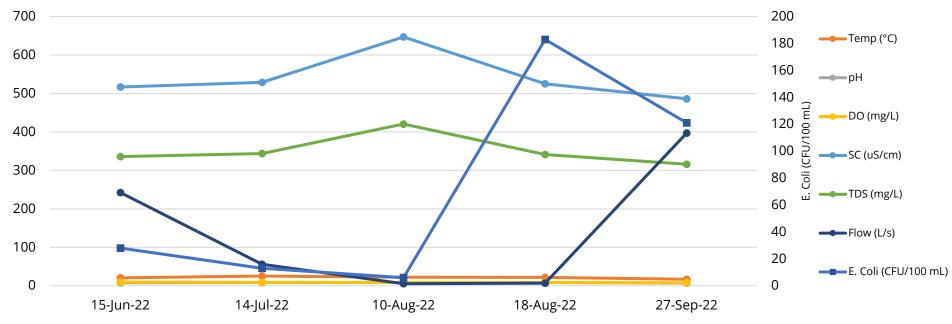
Inlet of First Lake	In	let	of	First	Lake
---------------------	----	-----	----	-------	------

Inlet of First Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	200	328	167	400	500
Temp (°C)	13.7	17	17.8	18.3	16.6
рН	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	

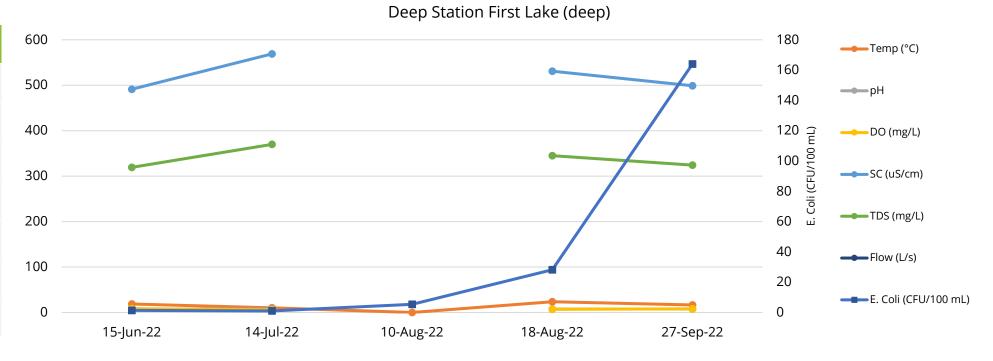


Outlet of First Lake 14-Jul 15-Jun 10-Aug 18-Aug 27-Sep *E. coli* (CFU/100 mL) 28 183 121 13 6 16.9 Temp (°C) 25.3 20.6 22.3 21.6 6.85 рΗ 7.73 8.34 8.66 8.4 DO (mg/L) 9.58 9.02 8.32 8.38 7.93 SC (uS/cm) 517 529 647 525 486.2 TDS (mg/L) 336.05 420.55 316.03 343.85 341.25 Flow (L/s) 242.37 55.88 5.35 6.63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

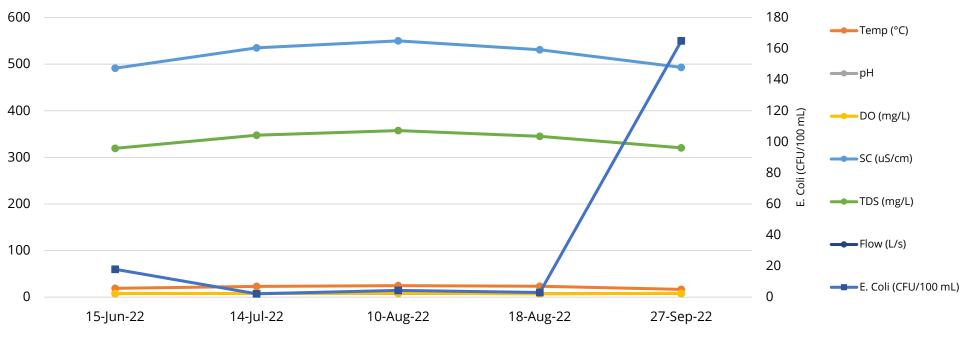




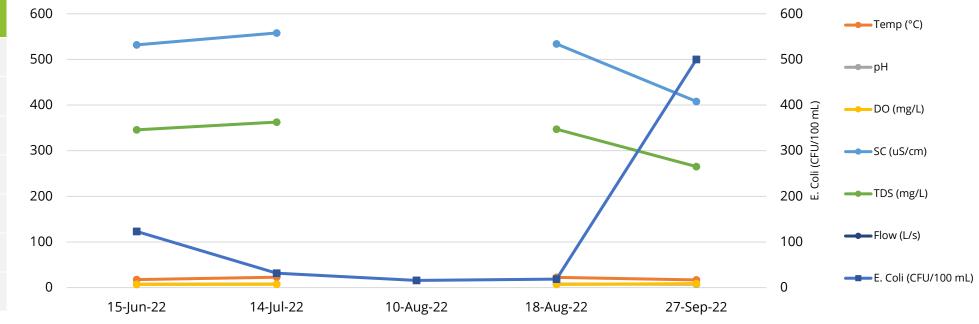
Deep Station First Lake (deep)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	1	1	5	28	164
Temp (°C)	18.8	10.1	-	23.6	16.4
рН	7.44	7.52	-	7.4	7.7
DO (mg/L)	8.46	5.66	-	6.9	8.13
SC (uS/cm)	491.2	569	-	531	499
TDS (mg/L)	319.28	369.85	-	345.15	324.35
Flow (L/s)	-	-	-	-	-



Deep Station First 27-Sep 14-Jul 10-Aug 18-Aug 15-Jun Lake (shallow) 165 *E. coli* (CFU/100 mL) 3 18 2 4 Temp (°C) 18.9 23.1 24.7 23.6 16.7 рΗ 7.88 7.61 8.08 7.99 7.69 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) 347.75 319.345 357.5 345.15 320.45 Flow (L/s) ---



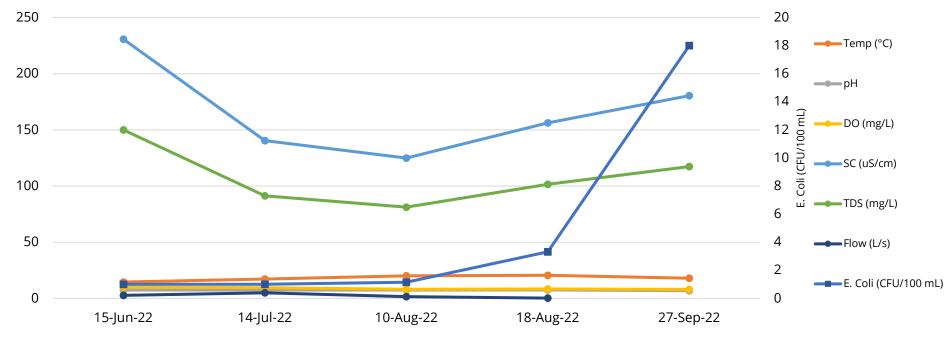
Deep Station First Lake (shallow)



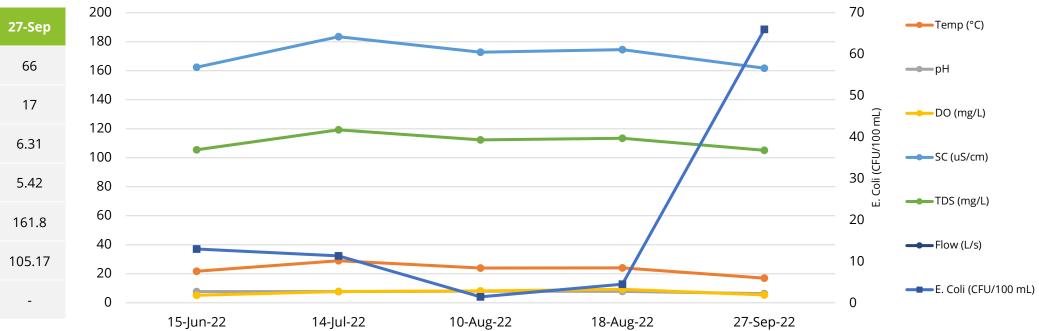
Kinsmen Beach	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	123	31.50446	15.72068	18.67653	500
Temp (°C)	17.7	22.8	-	22.6	16.8
рН	7.39	7.62	-	7.69	7.41
DO (mg/L)	7	7.4	-	6.87	8.85
SC (uS/cm)	532	558	-	534	407.9
TDS (mg/L)	345.8	362.7	-	347.1	265.135
Flow (L/s)	-	-	-	-	-

Unmarked Outfall

Unmarked Outfall	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	1	1	1	3	18
Temp (°C)	14.5	17.1	20	20.5	17.9
рН	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	-







2	14-Jul-22	10-Aug-22

Outlet of Second Lake

Outlet of Second Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	8	17	39	29	87
Temp (°C)	20.6	24.1	24.9	23	16.3
рН	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	-

Inlet of Second Lake

E. coli (CFU/100 mL)

Temp (°C)

DO (mg/L)

SC (uS/cm)

TDS (mg/L)

Flow (L/s)

рΗ

15-Jun

13

21.8

7.75

5.18

162.4

105.56

-

14-Jul

11

29

7.7

7.76

183.5

119.275

-

10-Aug

1

24

8.02

8.24

172.8

112.32

-

18-Aug

4

24.1

7.91

9.31

174.6

113.49

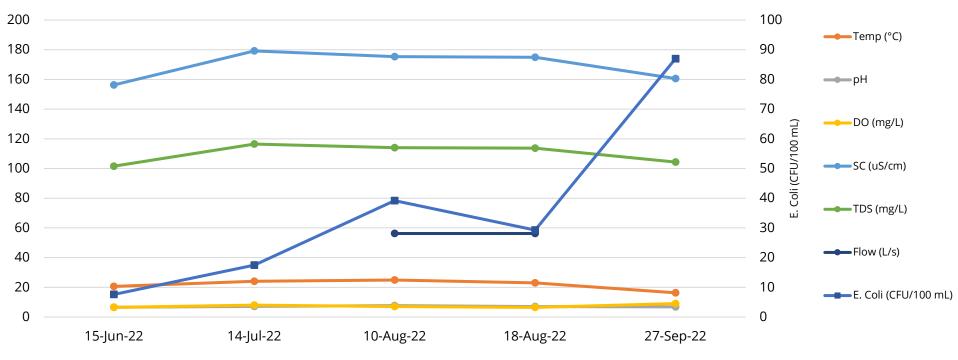
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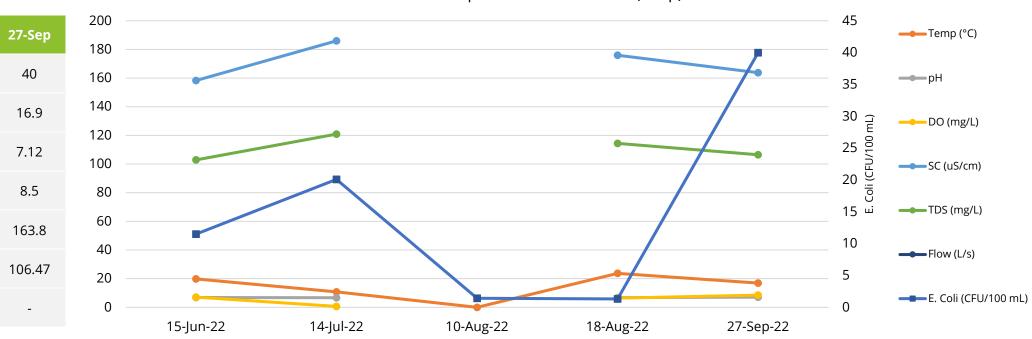
66

17

6.31

-





Deep Station Second Lake (deep)

Deep Station	Second Lake	(shallow)
Deep Station	Second Lake	(311011011)

Deep Station Second Lake (shallow)	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	9	1	1	1	30
Temp (°C)	19.9	23.8	24.6	23.7	16
рН	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)	-	-	-	-	-

14-Jul

20

10.8

6.7

0.66

186

120.9

-

10-Aug

1

-

-

-

-

-

-

18-Aug

1

23.7

6.78

6.4

176

114.4

-

15-Jun

12

19.8

6.87

7.14

158.3

102.895

-

Deep Station Second

E. coli (CFU/100 mL)

Lake (deep)

Temp (°C)

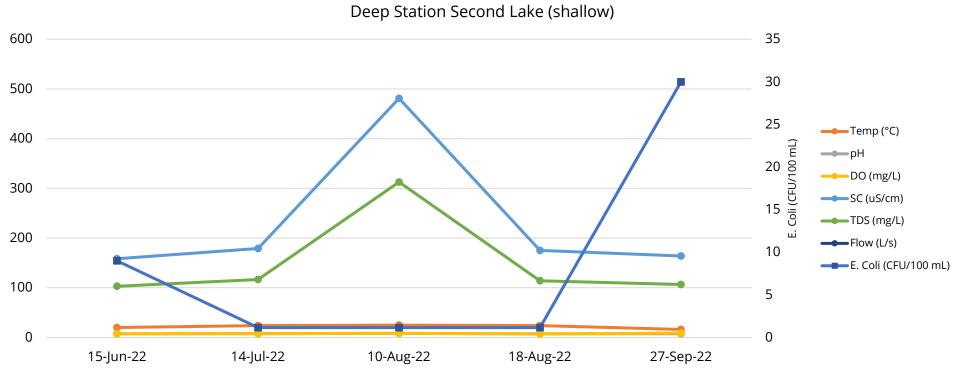
DO (mg/L)

SC (uS/cm)

TDS (mg/L)

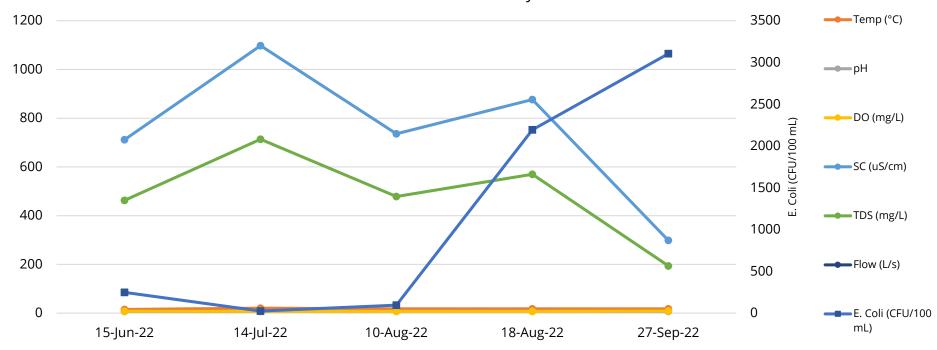
Flow (L/s)

рΗ



Cavalier Gully

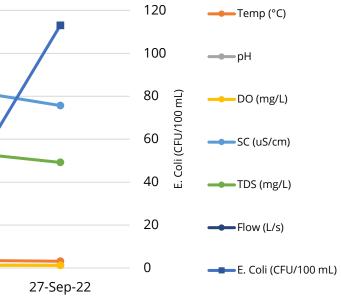
Cavalier Gully	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	248	25	96	2195	3106
Temp (°C)	15.2	20.4	17.5	17.4	17.6
рН	7.31	7.43	8.04	7.95	7.05
DO (mg/L)	7.9	7.14	7.29	7.21	8.76
SC (uS/cm)	712	1098	736	877	298.4
TDS (mg/L)	462.8	713.7	478.4	570.05	193.96
Flow (L/s)	-	-	-	-	-

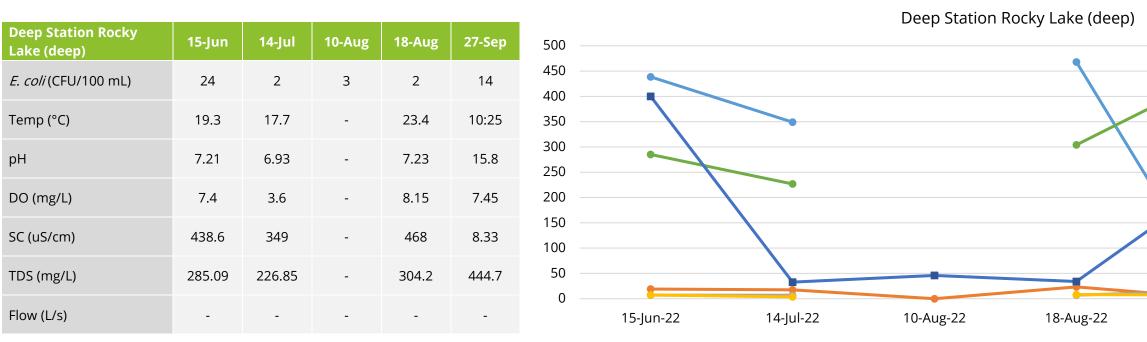


Inlet of Rocky Lake

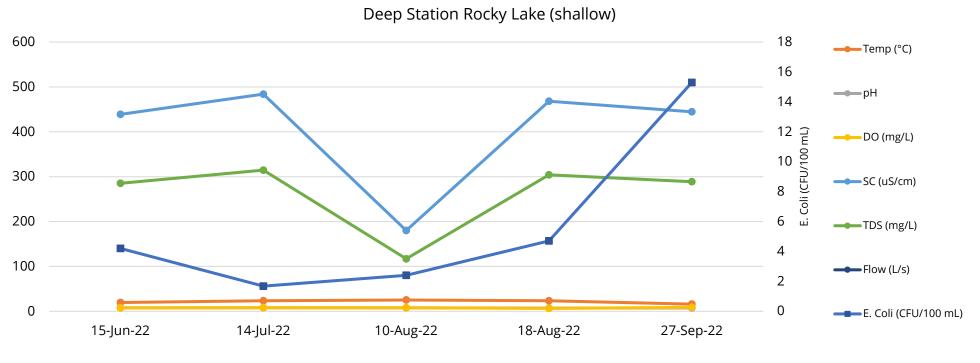
600 —				
500 —				
400 —				
300 —				
200 —				
100 —				
0 —	15-Jun-22	14-Jul-22	10-Aug-22	18-Aug-22

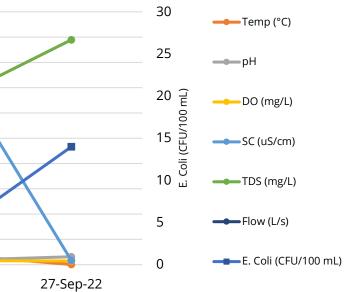
Inlet of Rocky Lake	15-Jun	14-Jul	10-Aug	18-Aug	27-Sep
<i>E. coli</i> (CFU/100 mL)	-	37	17	5	113
Temp (°C)	-	-	19.1	18.6	15.7
рН	-	-	7.45	6.98	6.44
DO (mg/L)	-	-	7.07	6.97	6.09
SC (uS/cm)	-	-	510	430.9	378.3
TDS (mg/L)	-	-	331.5	280.085	245.895
Flow (L/s)	-	-	-	-	-





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





APPENDIX C

Third-Party Accredited Laboratory Certificates





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: 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

- 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 (V1)

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(APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

Page 1 of 16

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Certificate of Analysis

AGAT WORK ORDER: 22X908522 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8718 FAX (902)468-8924 http://www.agatlabs.com

SAMPLING SITE:

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	e Filtration						
DATE RECEIVED: 2022-06-15								ſ	DATE REPORT	ED: 2022-06-20		
	SA	MPLE DES	CRIPTION:	FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4	FLN-1-5	FLW-7-1	FLW-7-2	FLW-7-3	
		SAM	PLE TYPE:	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	
											Kinsmen	
	SAMPLE DESCRIPTION:			FLW-7-4	FLW-7-5	FLW-8-1	FLW-8-2	FLW-8-3	FLW-8-4	FLW-8-5	Beach-1	
		SAM	PLE TYPE:	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	
				Kinsmen	Kinsmen	Kinsmen	Kinsmen	Unmarked	Unmarked	Unmarked	Unmarked	
	SA	SAMPLE DESCRIPTION:			Beach-3	Beach-4	Beach-5	Outfall-1	Outfall-2	Outfall-3	Outfall-4	
		SAM	PLE TYPE:	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	
				Unmarked	Culvert	Culvert	Culvert	Culvert	Culvert			
	SA	MPLE DES	CRIPTION:	Outfall-5	Upstream-1	Upstream-2	Upstream-3	Upstream-4	Upstream-5	Side Channel 1	Side Channel 2	
		SAM	PLE TYPE:	Water	FLW-7-3 Water 5 2022-06-15 10:36 3982487 >200 Kinsmen Beach-1 Water 5 2022-06-15 07:57 3982495 135 d Unmarked 9 Outfall-4 Water 5 2022-06-15 10:16 3982503 <1 el 1 Side Channel 2 Water 5 2022-06-15 09:20							
		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		
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



Certificate of Analysis

AGAT WORK ORDER: 22X908522 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

SAMPLING SITE:

CLIENT NAME: CBCL LTD

SAMPLING SITE:							SAMPLE	D BY:					
				E.co	oli Membrar	ne Filtration							
DATE RECEIVED: 2022-06-15									DATE REPORTED: 2022-06-20				
		SAMPLE DES	CRIPTION:	Side Channel 3	Side Channel 4	Side Channel 5	FLN 5-1	FLN 5-2	FLN 5-3	FLN 5-4	FLN 5-5		
		SAM	PLE 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 DES	CRIPTION:	FLN 8-1	FLN 8-2	FLN 8-3	FLN 8-4	FLN 8-5	FLE-5-1	FLE-5-2	FLE-5-3		
		SAM	PLE 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		
		SAM	PLE 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 DES	CRIPTION:	FLS-3-2	FLS-3-3	FLS-3-4	FLS-3-5	FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4		
		SAM	PLE 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



CLIENT NAME: CBCL LTD

SAMPLING SITE:

Certificate of Analysis

AGAT WORK ORDER: 22X908522 PROJECT: 220804.00

E.coli Membrane Filtration

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

ATTENTION TO: Michael Brophy

SAMPLED BY:

				L.00							
DATE RECEIVED: 2022-06-15									DATE REPORT	ED: 2022-06-20	
					Deep Station	Deep Station					
					First Lake	Rocky Lake	Rocky Lake				
	S	AMPLE DES	CRIPTION:	FLS-4-5	(deep)-1	(deep)-2	(deep)-3	(deep)-4	(deep)-5	(deep)-1	(deep)-2
		SAM	PLE TYPE:	Water	Water						
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
				11:40	07:50	07:50	07:50	07:50	07:50	12:45	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
				Deep Station	Deep Statio						
				Rocky Lake	Rocky Lake	Rocky Lake	Second Lake	Second Lake	Second Lake	Second Lake	Second Lake
	S	AMPLE DES	CRIPTION:	(deep)-3	(deep)-4	(deep)-5	(deep)-1	(deep)-2	(deep)-3	(deep)-4	(deep)-5
		SAM	PLE TYPE:	Water	Water						
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
				12:45	12:45	12:45	13:50	13:50	13:50	13:50	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
				Deep Station	Deep Lake	Deep Lake	Deep Lake				
				First Lake	Rocky Lake	Rocky Lake	Rocky Lake				
	S	AMPLE DES	CRIPTION:	(shallow)-1	(shallow)-2	(shallow)-3	(shallow)-4	(shallow)-5	(shallow)-1	(shallow)-2	(shallow)-3
		SAM	PLE TYPE:	Water	Water						
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
-				07:45	07:45	07:45	07:45	07:45	12:45	12:45	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
				Deep Lake							
				Rocky Lake	Rocky Lake	Second Lake	Second Lake	Second Lake	Second Lake	Second Lake	
	S	AMPLE DES	CRIPTION:	(shallow)-4	(shallow)-5	(shallow)-1	(shallow)-2	(shallow)-3	(shallow)-4	(shallow)-5	Cav-1
		SAM	PLE TYPE:	Water	Water						
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
-				12:45	12:45	13:50	13:50	13:50	13:50	13:50	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:



AGAT WORK ORDER: 22X908522 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	ne Filtration					
DATE RECEIVED: 2022-06-15								I	DATE REPORT	ED: 2022-06-20	
	SA	SAM	CRIPTION: PLE TYPE: SAMPLED:	Cav-2 Water 2022-06-15	Cav-3 Water 2022-06-15	Cav-4 Water 2022-06-15	Cav-5 Water 2022-06-15	Outlet of Second Lake 1 Water 2022-06-15	Outlet of Second Lake 2 Water 2022-06-15	Outlet of Second Lake 3 Water 2022-06-15	Outlet of Second Lake 4 Water 2022-06-15
Parameter	Unit	G/S	RDL	15:05 3982576	15:05 3982577	15:05 3982578	15:05 3982579	14:40 3982580	14:40 3982581	14:40 3982582	14:40 3982583
E. Coli (MF)	CFU/100 mL	SAM	CRIPTION: PLE TYPE: SAMPLED:	277 Outlet of Second Lake 5 Water 2022-06-15	248 Inlet of Second Lake 1 Water 2022-06-15	211 Inlet of Second Lake 2 Water 2022-06-15	256 Inlet of Second Lake 3 Water 2022-06-15	12 Inlet of Second Lake 4 Water 2022-06-15	10 Inlet of Second Lake 5 Water 2022-06-15	6	5
Parameter E. Coli (MF)	Unit CFU/100 mL	G/S	RDL 1	14:40 3982584 7	15:40 3982585 25	15:40 3982586 10	15:40 3982587 13	15:40 3982588 10	15:40 3982589 11		

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

Analysis performed at AGAT Halifax (unless marked by *)

Lara Knox

Certified By:



Method Summary

CLIENT NAME: CBCL LTD		AGAT WORK ORI	DER: 22X908522
PROJECT: 220804.00		ATTENTION TO: N	lichael 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

	GA	L I	_abora	tories webearth.a	agatla		Jnit 1 com•		Dar	tmou B3	ith, N B 1N	IS	A	iu o l	Con	- ditio			Goo 0.2 7,7			or (si		otes	2
Chain of Custo	dy Record			P	902	.468	.871	8 • F:	902	2.468	8.89	24	AG	AT Jo	ob N	um	ber:	0	61	(9	00	Da	Xd	•	
Report Information	- 1		Report I	nformation (Please print):		7	1.1	R	epo	rt F	orma	at		otes:											
			1 Name	Michael Brophy	11				_ Si	ngle S	ample		E	.CC	4i-	· C	FL	1		_		-			
Company: CBCL			- Fmail	mbronbulache	1.0	a		1		er page						_			equi	red	(TA	 T)			
Contact:				Merophy@cbc Merissc Frose				1		ultiple		oles													
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Phone:	Fax:			ory Requirements(Check):	23.5		14			cluded	ł		Ru	sh 1	TAT				e day ys		±10]30		2	-1ª-2	10h
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Invoice To	Same `	Yes 🗆 / No	Gas					R	eg. N	o.:															
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Phone:	Fax:	100	FW/	AL	reserv	Analy		CBOD			<u>u</u>		CX (PIR	EX Frac	I/BTE)			-			P/A 🗆 MPN		12	-	7
PO/Credit Card#:					Filtered/Preserved	I Wate	Total			D TDS	Phoenhorus		TPH/BTEX (PIRI)	PH/BT	NS TPH								2		/X) she
Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filt	Standard Water Analysis	Metals: [Mercury	□ BOD	Hq	D TSS	Total Ph	Phenols	Tier 1: T	- Åi	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC	Fecal C	Other:		Hazardous (Y/N)
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FLN-1-2	_									1.1					-										
FLN-1-3					-																		1		
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FLN-1-5							100											1			_	1	44	-	
FLW-7-1	June 15 10.360	~			100		-	1				-	-									_	1	-	
LW-7-2							-		-								-	-			_		1		_
FLW-7-3														_								_	1		
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FLW-7+5						_		-						_											
FLW-B-1	JUNCIS 10:59am	V		184-J														•)						1	
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Melissa Fras	er	Ju	ne 15							h.					Pink					Page	еЦ)f []	0	
Samples Rollinguished By (Sign):		Date/	:28pm	Samples Received Button:	0	,	1			Date	e/Time				Yellov Whit				Nº:		7	35	50	2	
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Invoice To Same Yes / No	Tie	r 2 Com N/Pot		🗆 Fir	ne		Drinl Reg.	-		r Sar	nple	: 🗆	Yes		lo	Sa	ilt W	ater	Sam	ple	□ Ye	es [] No
Company:	- Col Re: Agu	Iustrial NSEQS-Cont Sites mmercial HRM 101 s/Park Storm Water ricultural Waste Water	Filtered/Preserved	Water Analysis	Total 🗆 Diss 🗆 Available		CBOD	SV D VSS		sphorus		Tier 1: TPH/BTEX (PIRI) Iow level	TPH/BTEX Fractionation	S IPH/BIEA					D/A D MPN D MF	Pseudomonas	iform 🗆 MPN 🗠 MF	coli	(N/X) sr
Sample Identification Date/Time Sampled Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filte	Standard	Metals: 0	Mercury	D BOD		TKN	Total Phosphorus	Phenols	Tier 1: TP	Tier 2: TP	CUME-CWS	200	HAA	PAH	PCB	TC + EC	D HPC	Fecal Coliform	Other: C .	Hazardous (Y/N)
FLW-B-3 June 15 10:59am water	局																	1	F			\mathbf{H}	
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Merisse Fraser Samples Relinquished By (Sign): Milling Date/T	ne	Samples Received By (Sign):						1	Date/Tin	18	-	1	Yel	low C	ору	AGAT	-	1	-	-	35	-	-

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Sample identification Late/Time Sampled	imple # Containers		Field Filter Standard V	Metals: Total	D BOD	Н	I TSS	TKN Total Phosphorus	Phenols	- 1	Tier 2: TPI	CCME-CWS 1	VOC	THM	HAA	PAH	TC + EC		Fecal Col	Other: E	Other:	Hazardous (Y/N)
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Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals:	Mercury	D BOD		TKN	Total Phosphorus	Phenols	Tier 1: T	Tier 2: T	CCME-CWS TPH/BTEX	VOC	THM	HAA	PCB	TC + EC	□ HPC	Fecal Coliform	Other:	Other: Hazardous (Y/N)
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Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water	Metals: 🗆 Total		Hq	□ TSS	TKN T	Phenols	Tier 1: TPH/BTEX (PIRI)	Tier 2: Th	CCME-CWS TPH/BTEX	VOC	MHT	PAH	PCB	TC + EC	HPC DS	other:	Other:	Hazardous (Y/N)
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LS-2-1	June 15 10:37	-									-	-		-										
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	Kaille			White Copy- AGAT Nº: 73511



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

- 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 (V1)

Nember of: Association of Professional Engineers and Geoscientists of Alberta	
(APEGA)	
Western Enviro-Agricultural Laboratory Association (WEALA)	
Environmental Services Association of Alberta (ESAA)	

Page 1 of 8

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.



AGAT WORK ORDER: 22X908804 PROJECT: 220804.00

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

ATTENTION TO: ANDREW MACINTOSH

CLIENT NAME: CBCL LTD

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SAMPLING SITE:							SAMPLE	D BY:			
				E.co	oli Membrar	ne Filtration					
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		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
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	SA	AMPLE DES	CRIPTION:	FLE-3-4	FLE-3-5	FLS-1-1	FLS-1-2	FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
				16:30	16:30	18:25	18:25	17:50	17:50	17:50	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
	SA	AMPLE DES	CRIPTION:	FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3	FLW-2-4	FLW-2-5	FLW-3-1	FLW-3-2
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
				17:50	17:30	17:30	17:30	17:30	17:30	17:50	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
	SA	AMPLE DES	CRIPTION:	FLW-3-3	FLW-3-4	FLW-3-5	FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5
			PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
			-	17:50	17:50	17:50	16:30	16:30	16:30	16:30	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
	SA	AMPLE DES	CRIPTION:	FLN-2-1	FLN-2-2	FLN-2-3	FLN-2-4	FLN-2-5	FLN-3-1	FLN-3-2	FLN-3-3
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
			SAMPLED:	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15	2022-06-15
				15:05	15:05	15:05	15:05	15:05	14:53	14:53	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:

Lara Knox



AGAT WORK ORDER: 22X908804 PROJECT: 220804.00

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

SAMPLING SITE:

ATTENTION TO: ANDREW MACINTOSH

SAMPLED BY:

				E.co	oli Membrar	e Filtration			
DATE RECEIVED: 2022-06-16									DATE REPORTED: 2022-06-20
	SA	MPLE DES	CRIPTION:	FLN-3-4	FLN-3-5	FLS-1-3	FLS-1-4	FLS-1-5	
		SAM	PLE 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	

RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2021-03 Comments:

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



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										

Unit 122 • 11 Morris Driv Dartmouth, N B3B 1M webearth.agatlabs.com • www.agatlabs.com Chain of Custody Record P: 902.468.8718 • F: 902.468.891										NS .M2	Arr Arr Ho	ival (ival ⁻ Id Ti	Conc Temp me:	ditio pera	n: iture	э:_ (G00	d □ 	4,4	1_4)		
Chain of Custo	dy Record			P	902	2.46	8.871	18 •	F: 9	02.4	68.8	924				umb	ber:	-6	<i>i</i> a	Xc	10	00	0	4	=
Report Information			Report I	nformation (Please print):	24				Re	port	For	nat] No	otes:						94 94	22.1	IM	16	9	14
Company: <u>CBCL</u>			1. Name	Micheel Broph	4					Single	Sam	ole										~			
Contact: Michael Address:	-1 Brophy		Email 2. Name	Melissa Frose mfroser@cba	1 c	<u> </u>	_			per pa Multip per pa Excel	nge ble Sai nge Forma	mples	Re	gula	r TA	T	4 5	to 7	wor	red (days	Tre		7	
Client Project #: 2208 AGAT Quotation:		-	List Gu	ory Requirements(Check): idelines on Report Do not list 1 Res Pot			on Rep oarse	ort		Includ Export		_				۵	2	day	S		3 da	ays			
Please Note: If quotation number is		I price for analys	Tier	2 Com N/Por		🗆 Co				king V . No.:	Vater	Sam	ple:] Yes	DM.	No		Salt	Wate	er San	nple		Yes	M X	٩٥
			Res	nmercial 🛛 HRM 101 /Park 🔤 Storm Water cultural 🔤 Waste Water	Filtered/Preserved	Standard Water Analysis	Total Diss Available		CBOD	DS DSS		sphorus	Tier 1: TPH/BTEX (PIRI) I low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	-				a P/A a MpN a MF	Pseudomonas	Coliform D MPN D MF	Coli ME		Hazardous (Y/N)
Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filt	Standard	Metals: [LTSS	TKN	Total Phosphorus	Tier 1: TF	Tier 2: Th	CCME-CI	voc	THM	HAA	PAH	PCB TC + EC	D HPC	Fecal Co	Other:	Other:	Hazardo
FLE-2-1	June 15th 4:15p.	water	1									-		1				-					1		
FLE-2-2				144																		-			
FLE-2-3																			-		1				
FLE-2-4												- 1	-					-							
FLE - 2 - 5	× +			100 C		S												1			1.00				
FLE-3-4	June 15th 4:30pm			and the second se						3		- 1													
FLE-3-2																									
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FLE-3-5	V V																								
FLS-1-1	June 15th 6: 25pm	4																							
FLS-1-2	V	V	V																				V		
Samples Rollinguished By (Print Name): Michael Br Samples Relinguished By (Sign):	sphy 2	Date/1	live 16	Samples Received By (Print Name):	1	1	1				ate/Time			-1	Pink ('ellow White	Сору	/ - AG	AT -	Nº:	Page		of 35	1		

Unit 122 • 11 Morris Drive Dartmouth, NS B3B 1M2 Chain of Custody Record P: 902.468.8718 • F: 902.468.892										s 2	Arri Arri Hol	val (val 1 d Tir	Conc Femp me:	litior bera	n: ture	Only □ 0 : 5	<u>4</u>	1.4.	4.1	ų.				
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Company: CBCL			1. Name	Michael Brophy					_ s	ingle S	ample						_			800.7	5 117		~	nut-
Contact: <u>Michae</u> Address:	Brophy		Email:	Melissa Froser mfrascr@cbc	1.0				p M p E	er pag Iultiple er pag xcel Fe	e Samp e ormat	les	Reg	ula	r TA	т 🖄	₹5	Rec to 7 v	worki	ng da	ays	<u>, 1</u>	5	Carl.
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Invoice To	Same	Yes 🗆 / No	Gas	🗌 Fuel 🗌 Lube	-				leg. N	NO.:			_							-				
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	Fax:	-	Sed	iment 🗌 Other	/Pres	ter Ar		CBOD	100	8	orus		TEX	TEX	PH/B					P/A	Seu	а 1 г	Col	(N/)
PO/Credit Card#:					ered	I Wa	□ Total			□ TDS	sphi		H/B	тен/втех в	VS T			2				61	<u>сі</u>	
Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Mercurv	D BOD	Hq	D TSS	TKN Total Phosphorus	Phenols	Tier 1: T	Tier 2: TI	CCME-CWS TPH/BTEX	VOC	MHT	HAA	PCB	TC + EC	D HPC	Fecal Co		Other: Hazardous (Y/N)
FLW-1-1	June 15th 5: 50.	water	1																				F	
FLW-1-2	P			D D D																				
FLW-1-3																							-	
FLW-1-4																								
FLW-1-S	1						1		1						-		Υ.,		-					
FLW-2-1	June 15th 5:30								-				1									_		
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Unit 122 • 11 Morris Drive Dartmouth, NS B3B 1M2 Webearth.agatlabs.com • www.agatlabs.com Chain of Custody Record P: 902.468.8718 • F: 902.468.8924										, NS 1M2	Ar Ar	riva rival	Cor Ten	nditio nper	on: ature	-5	4.	,	4,1	4.4	1	_			
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Sample Identification	Date/	/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Filt	Standard Water Analysis	Metals: Total	Mercury	BOD	D TSS	TKN	Total Phosphorus	Phenols Tier 1. TPH/BTFX (PIRI) I low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	DCB	TC + EC	C HPC	Fecal Co	Other: 🗲	Other:
LW-3-1	June	15th 5: 50pm	water	1									- 11											1	
-LW-3-2	-			- I																				T	
FLW-3-3																									
=LW-3-4										_															
=LW-3-5		V				-		_						1						_					2
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-Luu-6-2						-		_	_	_	_	-	_	_	-	-	-		_		-	-		-	
LW-6-3									_	_	_		_	_		-	-		_		+			-	_
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Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments – Site/Sample Info. Sample Containment	Field Fi	Standard	Metals: Total	Mercury	□ B0D	DH SST C	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) I low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA PAH	PCB	TC + EC	D HPC	Fecal Coliform	Other: E.co L	Other:	Hazardous (Y/N)
FLN - 2-3	June 15th 3:05pm																				1		\square	T		
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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.
- 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 (V1)

Nember of: Association of Professional Engineers and Geoscientists of Alberta	
(APEGA)	
Western Enviro-Agricultural Laboratory Association (WEALA)	
Environmental Services Association of Alberta (ESAA)	

Page 1 of 5

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.



AGAT WORK ORDER: 22X920735 PROJECT: 220804 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

	E.coli Membrane Filtration														
DATE RECEIVED: 2022-07-14									DATE REPORTED: 2022-07-19						
				Rocky Lake											
	SA	MPLE DES	CRIPTION:	Inlet 1	Inlet 2	Inlet 3	Inlet 4	Inlet 5							
		SAM	PLE 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							
. 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 *)

Lara Knox



Exceedance Summary

AGAT WORK ORDER: 22X920735 PROJECT: 220804 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-88718 FAX (902)468-8924 http://www.agatlabs.com

CLIENT NAME: CBCL LTD

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



Method Summary

CLIENT NAME: CBCL LTD		AGAT WORK OF	RDER: 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

agat :	Labora		nit 122 om• w\	Da	irtmo B3	uth, 1 3B 1N	NS /12	Arri Arri	val C val T	tory Cond Temp ne:	itio era	n: ature	e:	B	od Ç		Poor 25.4 20	(sei		tes)	2
Chain of Custody Record		P: 902.468.	8718 •	F: 90	2.46	8.89	24	AGA	ol T/	b Nu	mb	er:		de	法	46	20	k	55	_	=
Report Information	Report	Information (Please print):	-	Rep	ort F	orm	at	NO	tes:	Ju	St	5	300	mf	ne	A					
Company: <u>CBCL</u> Contact: <u>Michael Brophy</u> Address:	Emai 2. Nam	e: Michael Brophy II: mbrophy@cbcl.ca II: Melisse Fraser II: mfraser@cbcl.ce			ber pa Multipl ber pa	e Sam ge ormat	ples	Tur Reg Rus	ulaı	TAI	•	(5	i to	7 wo	orkir	ng d			Å	C ./	
Phone: Fax: Client Project #: 220804		tory Requirements (Check): auidelines on Report	Report	_	Export					quire		12	: day	ys			1 day 3 day	/S	4	2*2	(b)
AGAT Quotation: Please Note: If quotation number is not provided client will be billed full price for ana Invoice To Same Yes / N	ysis.			Drink Reg.		/ater §	Samp	le: 🗆	Yes		NO	:	Salí	t Wa	ter S	Sam	ple	□ Y	′es		0
Company:	□ Co □ □ Re □ □ Ag □ □ FW	dustrial INSEQS-Cont Sites			DTDS USS	TKN Total Bhasebarus	spinings S	Tier 1: TPH/BTEX (PIRI)	2: TPH/BTEX Fractionation	CWS TPH/BTEX	R			1.2		C D/A C MPN C MF	□ Pseudomonas	Cetiform D MPN D MF	E. col. H	5	Hazardous (Y/N)
Sample Identification Date/Time Sampled Sample Matrix	# Containers	Comments - Site/Sample Info.	Mercury	Ha	D TSS	Total D	Phenols	Tier 1:	Tier 2:	CCME-CWS	20C	THM	HAA	PAH	PCB	TC + EC		Fecal	other: E	other	Hazaro
Pockey Lake Intel 1 July 14, 5:10 pm ucter Rocky Lake Intel 2 Rocky Lake Intel 3 Rocky Lake Intel 4 Pockey Lake Intel 4		Sorry will be above 10°C as brought to lab surrought to lab sampling																	y		
													-					_	_	_	_
Melissa Fraser 3 Samples Relinguished (#) (Sign): Date	Time Jy 14 Time ZSpm	Samples Received By (Print Name): Samples Received By (Sign):				e/Time e/Time			Y	Pink Co ellow (Vhite (Сору	y - AG,	GAT	Nº:	-	lge [73	-	09	9 3 : May 19	9, 201f



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

otes		

- 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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- 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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AGAT Laboratories (V1)

Nember of: Association of Professional Engineers and Geoscientists of Alberta	
(APEGA)	
Western Enviro-Agricultural Laboratory Association (WEALA)	
Environmental Services Association of Alberta (ESAA)	

Page 1 of 22

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AGAT WORK ORDER: 22X920828 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

SAMPLED BY:

SAMPLING SITE:

CLIENT NAME: CBCL LTD

				E.co	oli Membrar	ne Filtration					
DATE RECEIVED: 2022-07-14								I	DATE REPORT	ED: 2022-07-19	
Parameter	S Unit	-	CRIPTION: PLE TYPE: SAMPLED: RDL	Deep station First Lake (deep) 1 Water 2022-07-14 07:55 4094491	Deep station First Lake (deep) 2 Water 2022-07-14 07:55 4094492	Deep station First Lake (deep) 3 Water 2022-07-14 07:55 4094493	Deep station First Lake (deep) 4 Water 2022-07-14 07:55 4094494	Deep station First Lake (deep) 5 Water 2022-07-14 07:55 4094495	Deep station Rocky Lake (deep) 1 Water 2022-07-14 10:46 4094496	Deep station Rocky Lake (deep) 2 Water 2022-07-14 10:46 4094497	Deep station Rocky Lake (deep) 3 Water 2022-07-14 10:46 4094498
E. Coli (MF)	CFU/100 mL	1	1	1	<1	<1	<1	<1	3	<1	2
_		DATE	PLE TYPE: SAMPLED:	Deep station Rocky Lake (deep) 4 Water 2022-07-14 10:46	Deep station Rocky Lake (deep) 5 Water 2022-07-14 10:46	Deep station Second Lake (deep) 1 Water 2022-07-14 09:25	Deep station Second Lake (deep) 2 Water 2022-07-14 09:25	Deep station Second Lake (deep) 3 Water 2022-07-14 09:25	Deep station Second Lake (deep) 4 Water 2022-07-14 09:25	Deep station Second Lake (deep) 5 Water 2022-07-14 09:25	Deep station First Lake (shallow) 1 Water 2022-07-14 07:52
Parameter E. Coli (MF)	Unit CFU/100 mL	G/S 1	RDL	4094499 5	4094500	4094501 22	4094502 20	4094503 22	4094504 13	4094505 26	4094506
Parameter	S Unit	SAMPLE DES	CRIPTION: PLE TYPE: SAMPLED: RDL	Deep station First Lake (shallow) 2 Water 2022-07-14 07:52 4094507	Deep station First Lake (shallow) 3 Water 2022-07-14 07:52 4094508	Deep station First Lake (shallow) 4 Water 2022-07-14 07:52 4094509	Deep station First Lake (shallow) 5 Water 2022-07-14 07:52 4094510	Deep station Rocky Lake (shallow) 1 Water 2022-07-14 10:41 4094511	Deep station Rocky Lake (shallow) 2 Water 2022-07-14 10:41 4094512	Deep station Rocky Lake (shallow) 3 Water 2022-07-14 10:41 4094513	Deep station Rocky Lake (shallow) 4 Water 2022-07-14 10:41 4094514
E. Coli (MF)	CFU/100 mL	1	1	1	4	2	2	<1	2	2	1
		DATE	PLE TYPE: SAMPLED:	Deep station Rocky Lake (shallow) 5 Water 2022-07-14 10:41	Deep station Second Lake (shallow) 1 Water 2022-07-14 09:22	Deep station Second Lake (shallow) 2 Water 2022-07-14 09:22	Deep station Second Lake (shallow) 3 Water 2022-07-14 09:22	Deep station Second Lake (shallow) 4 Water 2022-07-14 09:22	Deep station Second Lake (shallow) 5 Water 2022-07-14 09:22	Water 2022-07-14 15:00	Gully on Cavalier Drive 2 Water 2022-07-14 15:00
Parameter	Unit	G/S	RDL	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



ATTENTION TO: Michael Brophy

SAMPLED BY:

AGAT WORK ORDER: 22X920828 PROJECT: 220804.00

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

SAMPLING SITE:

DATE RECEIVED: 2022-07-14								ſ	DATE REPORT	ED: 2022-07-19	
				Gully on	Gully on	Gully on	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Secon
	s	AMPLE DES	SCRIPTION:	Cavalier Drive 3	Cavalier Drive 4	Cavalier Drive 5	Lake 1	Lake 2	Lake 3	Lake 4	Lake 5
		SAM	IPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14
				15:00	15:00	15:00	14:45	14:45	14:45	14:45	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
	-			Outlet of							
	S	-		Second Lake 1	Second Lake 2	Second Lake 3	Second Lake 4	Second Lake 5		FLW-1-1	FLW-1-2
		-	IPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		DATE	SAMPLED:	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14		2022-07-14	2022-07-14
Demonstra	11-14	o (0		10:05	10:05	10:05	10:05	10:05		11:40	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
	s	AMPLE DES	CRIPTION:	FLW-1-3	FLW-1-4	FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3	FLW-2-4	FLW-2-5
		SAM	IPLE 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
	s	AMPLE DES	CRIPTION:	FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5		FLS-2-1	FLS-2-2
		SAM	IPLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		DATE	SAMPLED:	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14		2022-07-14	2022-07-14
				10:50	10:50	10:50	10:50	10:50		13:15	13:15
Parameter	Unit	G/S	RDL	4094546	4094547	4094548	4094549	4094550	RDL	4094551	4094552

E.coli Membrane Filtration

Certified By:

Lara Knox



AGAT WORK ORDER: 22X920828 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

SAMPLING SITE:

CLIENT NAME: CBCL LTD

SAMPLED BY:

				E.co	oli Membrar	ne Filtration	I				
DATE RECEIVED: 2022-07-14								I	DATE REPORT	ED: 2022-07-19	
	SA	MPLE DES	CRIPTION:	FLS-2-3	FLS-2-4	FLS-2-5		FLS-3-1	FLS-3-2	FLS-3-3	FLS-3-4
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLS-3-5	FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4	FLS-4-5	FLN-8-1	FLN-8-2
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14
				12:30	12:50	12:50	12:50	12:50	12:50	12:07	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
	SA	MPLE DES	CRIPTION:	FLN-8-3	FLN-8-4	FLN-8-5		FLE-2-1	FLE-2-2	FLE-2-3	FLE-2-4
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLE-2-5	FLE-3-1	FLE-3-2	FLE-3-3	FLE-3-4	FLE-3-5	FLE-5-1	FLE-5-2
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLE-5-3	FLE-5-4	FLE-5-5		FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4
			PLE 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 WORK ORDER: 22X920828 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	e Filtration					
DATE RECEIVED: 2022-07-14								I	DATE REPORTI	ED: 2022-07-19	
	SA	MPLE DES	CRIPTION:	FLN-1-5	FLN-2-1	FLN-2-2	FLN-2-3	FLN-2-4	FLN-2-5		FLN-3-1
		SAM	PLE 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		2022-07-1 08:50
Parameter	Unit	G/S	RDL	4094590	4094591	4094592	4094593	4094594	4094595	RDL	4094596
. Coli (MF)	CFU/100 mL	1	100	800	13700	14000	15600	15400	14200	1	3
								Unmarked	Unmarked	Unmarked	Unmarke
	SA	MPLE DES	CRIPTION:	FLN-3-2	FLN-3-3	FLN-3-4	FLN-3-5	Outfall 1	Outfall 2	Outfall 3	Outfall 4
		SAM	PLE 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	2022-07-1 09:30
Parameter	Unit	G/S	RDL	4094597	4094598	4094599	4094600	4094601	4094602	4094603	4094604
. Coli (MF)	CFU/100 mL	1	1	4	2	2	4	<1	<1	<1	<1
				Unmarked							
	SA	MPLE DES	CRIPTION:	Outfall 5		FLW-3-1	FLW-3-2	FLW-3-3	FLW-3-4	FLW-3-5	
		SAM	PLE 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	
. Coli (MF)	CFU/100 mL	1	1	<1	100	4700	5800	6100	5200	5200	
	SA	MPLE DES	CRIPTION:	FLW-7-1	FLW-7-2	FLW-7-3	FLW-7-4	FLW-7-5		FLW-8-1	FLW-8-2
		SAM	PLE 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	2022-07-1 09:50
Parameter	Unit	G/S	RDL	4094611	4094612	4094613	4094614	4094615	RDL	4094616	4094617
. Coli (MF)	CFU/100 mL	1	2	122	106	122	84	108	100	>20000	>20000

Lara Knox



AGAT WORK ORDER: 22X920828 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

SAMPLING SITE:

CLIENT NAME: CBCL LTD

SAMPLED BY:

				E.co	li Membra	ne Filtration					
DATE RECEIVED: 2022-07-14								Γ	DATE REPORT	ED: 2022-07-19	
								Outlet of First	Outlet of First	Outlet of First	Outlet of First
		SAMPLE DES	CRIPTION:	FLW-8-3	FLW-8-4	FLW-8-5		Lake 1	Lake 2	Lake 3	Lake 4
		SAM	PLE TYPE:	Water	Water	Water		Water	Water	Water	Water
		DATE	SAMPLED:	2022-07-14 09:50	2022-07-14 09:50	2022-07-14 09:50		2022-07-14 13:30	2022-07-14 13:30	2022-07-14 13:30	2022-07-14 13:30
Parameter	Unit	G/S	RDL	4094618	4094619	4094620	RDL	4094621	4094622	4094623	4094624
E. Coli (MF)	CFU/100 mL	_ 1	100	>20000	>20000	>20000	1	14	13	15	12
				Outlet of First		Kinsmen Beach	Inlet of First				
		SAMPLE DES	CRIPTION:	Lake 5		Α	В	С	D	E	Lake 1
		SAM	PLE TYPE:	Water		Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-07-14		2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14	2022-07-14
				13:30		08:20	08:20	08:20	08:20	08:20	08:05
Parameter	Unit	G/S	RDL	4094625	RDL	4094626	4094627	4094628	4094629	4094630	4094631
E. Coli (MF)	CFU/100 mL	_ 1	1	12	2	84	60	60	90	110	316
				Inlet of First	Inlet of First	Inlet of First	Inlet of First				
		SAMPLE DES	CRIPTION:	Lake 2	Lake 3	Lake 4	Lake 5				
		SAM	PLE TYPE:	Water	Water	Water	Water				
		DATE	SAMPLED:	2022-07-14 08:05	2022-07-14 08:05	2022-07-14 08:05	2022-07-14 08:05				
Parameter	Unit	G/S	RDL	4094632	4094633	4094634	4094635				
E. Coli (MF)	CFU/100 mL	_ 1	2	240	370	336	400				

RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2021-03 Comments:

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



CLIENT NAME: CBCL LTD

Exceedance Summary

AGAT WORK ORDER: 22X920828 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8718 FAX (902)468-8924 http://www.agatlabs.com

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



CLIENT NAME: CBCL LTD

Exceedance Summary

AGAT WORK ORDER: 22X920828 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8818 FAX (902)468-8924 http://www.agatlabs.com

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



Exceedance Summary

AGAT WORK ORDER: 22X920828 PROJECT: 220804.00

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

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



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	L		·								
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR								

Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com	Phon Fax: Toll f	C Lab PRECOR 2: 902-468-871 902-468-8924 ree: 888-468-87 agatlabs.com	8			Ar Ar No Dr	rrival rrival otes: rinkin	Cono Tem g Wa		ure: amp	S ole (y	-	÷			oor (c Job Ni leg. N						528
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrington St. Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation: Client Project #: 220804.00 Invoice to: Same (Yes) - Circle			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				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:												
Company: Same as above Contact: Address: Phone: Fax: PO#: SAMPLE IDENTIFICATION	DATE / TIME SAM SAMPLED MATI	□ Ind. □ Cor □ Res/ □ Ag □ FWA	⁽ p □ NSDFOSP □ Other L COMMENTS - Site(Sample	iltered / Preser	Standard Water Analysis + TMS	TP	SRP	Chiorophyll A	TSS	E.Coli	Enterococci								Other:	Other:	Hazardous (Y/N)	Lab Sample #
 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 	Juli 4 7:55am																					
Deep Station Rocky Lake (deep) 1 Deep Station Rocky Lake (deep) 2 Deep Station Rocky Lake (deep) 3 Deep Station Rocky Lake (deep) 4	JULY WYGUM																					
 Deep Station Rocky Lake (deep) 5 Deep Station Second Lake (deep) 1 Deep Station Second Lake (deep) 2 Sample Relinquished By (print name) 	Juli4 9:25an	Date/Time	Samples Receive	d By ((print	nam	e)				Date	e/Time	Pink	Сору	- Client					of		
Sample Relinquished By (sign)		Date/Time	Samples Receive	d By	(sign)	/	1				Date	-30 36	Yello	w Copy	- AGAT		age <u>.</u>):	1		_ of		





59,67,51

CHAIN OF CUSTODY RECORD

Report to: Company: <u>CBCL</u> Same as COC#:				ered / Preserve	Standard Water Analysis +			yll A			2			A Diversion				N. C. C.		A Part and	(N/A) sn	Lab Sample
SAMPLE IDENTIFICATION		AMPLE # OF ATRIX CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered /	Standard \	TKN	SRP	Chlorophyll	TSS	E.Coli	Enterococci		an Alba	IN N					Other:	Other:	Hazardous (Y/N)	#
Deep Station Second Lake (deep) 3	1								1 I					-		- 33				0	-	
Deep Station Second Lake (deep) 4					4 15					10			- V				-					
Deep Station Second Lake (deep) 5					13						1			10	1					1 - P		
Deep Station First Lake (shallow) 1	Jully 7:520m										2		100	100		Nim						-
Deep Station First Lake (shallow) 2					44			int:		-					1	12.2						
Deep Station First Lake (shallow) 3						1		1		100												
Deep Station First Lake (shallow) 4						1		<i>.</i>			12					21					-	
Deep Station First Lake (shallow) 5								1						10								
Deep Station Rocky Lake (shallow) 1	Jul 14 10:41am									2				10		1000						
Deep Station Rocky Lake (shallow) 2	1					1	0	1-19			310							7.0			-	
Deep Station Rocky Lake (shallow) 3								100							1						-	
Deep Station Rocky Lake (shallow) 4					- 17	3				Shi I											\rightarrow	
Deep Station Rocky Lake (shallow) 5	Ve				32			1								1				231	\rightarrow	
Deep Station Second Lake (shallow) 1	Fully 9:22an					1										128					-	
Deep Station Second Lake (shallow) 2							1		1						-	1					-	
Deep Station Second Lake (shallow) 3								To be		-				100	-						+	
Deep Station Second Lake (shallow) 4															-				-		+	
Deep Station Second Lake (shallow) 5	V				2.3		, a.,			100	1.741			18	1				-		+	
Gully on Cavalier Drive 1	Jul14 3.000m				1		3				25-			10		1.5					-	
Gully on Cavalier Drive 2						10		17/1	1			1				1					-	
Gully on Cavalier Drive 3						8		2.0						10		1000					-	
Gully on Cavalier Drive 4					15	123	2	15	1	18	54			17		1.11.5		121			+	
Gully on Cavalier Drive 5				1		10		3.0						1							+	
Inlet of Rocky Lake 1	<								- Constanting		100										+	
Inlet of Rocky Lake 2				1						B							-				+	
Sample Relinquished By (print name)		Date/Time	Samples Receive	d By ((print	t nam	ne)		100	5	Date/Ti	me U	Pink C	Copy - C	l			_ا ۲۰	U	of		
Sample Relinquished By (sign)		Date/Time	Samples Receive	d By	sign	V	7			C	Date/Ti	me	Yellow	Сору - Сору - Сору -	AGAT	NO:			L			

(8 m	250	100	8 254	31 II	
		100	5.5	185	
1	J.A	2.94	124	1.15	24
			571	19 in	
2.5			$h \approx$		
			10.5	1.00	



5.9, 107, 5.1

CHAIN OF CUSTODY RECORD

Report to: Company: <u>CBCL</u> Same as COC# ;			-		- Filtered / Preserve	Standard Water Analysis +		x 17. 2 - 20		hyll A		occi						11-11-11-11-11-11-11-11-11-11-11-11-11-		0.10.01		Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fill	Standard	TKN	дL	SRP	Chlorophyll A	TSS	E.Coli Enterococci	111	1000		dig it Second				Other:	Other:	Hazardo	
Inlet-of Rocky Lake 3								144	-				100	100		1.72						-	
Inlet of Rocky Lake 4						및				100	10			18		1.2		173			100		
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com	Fax: Toll f	E: 902-468-8718 902-468-8924 ree: 888-468-871 .agatlabs.com	,	S			rrival rrival lotes: prinkir	Con- Terr () ng W	den	: ure: 10 Samp	e l			agat F							
Report To:Company:CBCLContact:Michael BrophyAddress:Suite 901, 1505 BarriHalifax NSB3J 2R7Phone:902-421-7241PAX:PO#:AGAT Quotation:Client Project #:220804.00Invoice to:Same (Yes) - Colored		1. Name: Email: 2. Name: Email: Regulator PIRI D PIRI <u>Tier</u>	1 □ Res. □ F 2 □ Comm. □ N	ca (Che ⊂all tha Pot. □	at app ⊐ _{Coa}	oly): arse			Repo Forma Sing samper p Multi samper p Exce Form Inclu	at le ple page iple ples page l nat		Turna Regula Rush T E Date Re Time Re	r TAT] { AT:] 2 equired	5 to 7 w 24 to 48 48 to 72 1:	vorkin 3 hou	ig da rs	•	luir	ed		
Company: Same as above Contact: Address: Phone: Fax: PO#: SAMPLE IDENTIFICATION		Res/p	MAC/IMAC A / O NSDFOSP Other	ered / Preserve	Standard Water Analysis + TMS	TKN	SRP	Chlorophyll A	TSS	E.Coli	Enterococci							Other:	Other:	Hazardous (Y/N)	Lab Sample #
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Report to: Company: <u>CBCL</u> Same as COC#:				Filtered / Preserve	Standard Water Analysis +				hyll A		States and states	occi				- 3. W.						No. No. No.	Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMP SAMPLED MATR		COMMENTS - Site/Sample Info/Contaminant	Field Filt	Standard	TKN	ТР	SRP	Chlorophyll A	TSS	E.Coli	Enterococci								100	Other:	Other:	lazardo	
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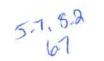


Report to: Company: <u>CBCL</u> Same as COC#:			2. 27		Field Filtered / Preserve	Standard Water Analysis +				hyll A		500 000 00	iocci				Section 1		C Standing		1 2 2 40		un boolent	Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fi	Standard	TKN	ТР	SRP	Chlorophyll A	TSS	E.Coli	Enterococci		12		4					Other:	Other:	Hazard	
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Unit 122 - 11 Morris Dr. Phone Dartmouth, Nova Scotia Fax: 9 B3B 1M2 Toll fr	Laboratories FRECORD a: 902-468-8718 902-468-8924 ree: 888-468-8718 agatabs.com	Laboratory use Only Arrival Condition: Good Arrival Temperature: 5 - 7 - 8 - 2 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4
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	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 a Tier 1 Res. Pot. C Tier 2 Comm. N/Pot. F	apply): per page Excel Coarse Format Date Required:
Contact: Address: Phone: Fax: PO#:	□ Ind, □ MAC/IMAC □ Com □ A / O □ Res/p □ NSDFOSP □ Ag □ Other □ FWAI	TKN TRN SRP Chlorophyll A TSS E.Coli Enterococci there:: the second there:: the second there:: the second the sec
	# OF CONTAINERS COMMENTS - Site/Sample Info/Contaminant III Dial Image: Site Stars Image: Site Stars Image: Site Stars Image: Site Stars	TKN T
Sample Relinquished By (print name) Sample Relinquished By (sign)	Date/Time Samples Received By (pri Date/Time Samples Received By (sig	int name) Date/Time





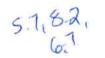


CHAIN OF CUSTODY RECORD

Report to: Company: <u>CBCL</u> Same as COC#:			-		Field Filtered / Preserve	l Water Analysis +				hyll A			occi		and a second				CONTRA LO				Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fil	Standard Water	TKN	ТÞ	SRP	Chlorophyll A	TSS	E.Coli	Enterococci						2.2.2	5	Other:	Other:	Hazard	
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[©] FLN - 8 - 2	1					2 m					1			1			1	W						
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FLE - 1 - 3						315						1					69					1.01		
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				- A	4	24	2	/		_	_		16-	50					10:					

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CHAIN OF CUSTODY RECORD

Report to: Company: CBCL Same as COC#:				-		Field Filtered / Preserve	Standard Water Analysis +		12020		A Ilyr		1 3 1 1 1	occi				The second							Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE	/ TIME PLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fill	Standard	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	20			12.20					Other:	Other:	lazardo	"
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S FLE - 3 - 5		V					10)								8	No.						Sal				_
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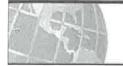
	Y RECORD 902-468-8718)2-468-8924				111 0		or (complete 'note	≥s')
			Notes:	Temperature.	9-9,30	ood □Poo <u>6 100</u> AGAT Jo	ob Number:	
B3B 1M2 Toll fre	e: 888-468-8718 gatlabs.com		Drinkin	g Water Samı orks Number		Re	g. No	
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrington St. Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation;	Report Information 1. Name: Michael Brophy Email: mbrophy@cbcl.ca 2. Name: Melissa Fraser Email: mfraser@cbcl.ca Regulatory Requirements (D PIRI	(Check): Il that apply)		Report Format Single sample per page Multiple samples per page Excel	Regula Rush T	🗃 🛛 5 to 7 wo	rking days hours	-ed
Client Project #: 220804.00 Invoice to: Same (Yes) - Circle	$\Box Tier 1 \Box Res. \Box Pot.$ $\Box Tier 2 \Box Comm. \Box N/Pot.$		e	Format	Date Re	equired:		
Company: Same as above Contact: Address: Phone: Fax:	$\square CCME \square CDWQ$ $\square Ind. \square MAC/IMAC$ $\square Com \square A / O$ $\square Res/p \square NSDFOSP$ $\square Ag \square Other$	WS		A		equired:		Other: Hazardous (Y/N) # #
PO#:	FWAL	ard W		Chlorophyll TSS E.Coli	Enterococci			nopl #
SAMPLE IDENTIFICATION DATE / TIME SAMPLED MATRI	# UF Cito/Comple	Standard TKN	SRP	Chloro TSS E.Coli	Enter		Other:	Other: Hazai
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LN - 2 - 1 Juli 4 7:45an			21					
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	Report to: Company: CBCL					Preserved	Analysis +											20							
	Same as COC#:			-		Filtered / Pr	Water				hylí A			occi										Utner: Hazardous (Y/N)	Lab Sample
	SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fil	Standard	TKN	ТР	SRP	Chlorophyll A	TSS	E.Coli	Enterococci		171		111		101		Cthor:	Cuici .	Utner: Hazardo	
÷	FLN - 3 - 3	1											1		2	101				50					
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Ð	FLN - 3 - 5	V					6.51				in.		10										100		
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ú	Unmarked Outfall 2	1									100		T							Y	6		8		
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5	FLW - 3 ~ 1	JULIY 11:200					1.70		120		84		1		rd.sti	184				3	14				
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Report to: Company: <u>CBCL</u> Same as COC#:				Field Filtered / Preserve	Standard Water Analysis +			AII A			ci			10				1 5 8 7 1			Is (Y/N)	Lab Sample
SAMPLE IDENTIFICATION		SAMPLE # OF MATRIX CONTAINER	COMMENTS - Site/Sample	Field Filte	Standard W	TKN	AP SRD	Chlorophyll	TSS	E.Coli	Enterococci								Other:	Other:	Hazardous (Y/N)	#
Outlet of First Lake 3					QUIT]					1					-			1				
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👌 Kinsmen Beach A	Jul 14 8:2000				51.5	1							10.0			104						
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Inlet of First Lake 2					318		111						105		-			2 1				
Inlet of First Lake 3					112			12-				100	100	1	8			100				
Inlet of First Lake 4					2					ij	-		1000	10	-	1010		1631				
Inlet of First Lake 5					1000					- 6		315			-					1.0001		
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Sample Relinquished By (print nam	l ll	Date/Time	Samples Receive	ed Bv	(prin	nt nar	ne)	0			Dat	e/Time		10				and .		10		
	-											y [4	Pink	к Сору -	Client	P	age	12		of		
Sample Relinquished By (sign)		Date/Time	Samples Receive	ed By	sigr	1)	1				Dat	e/Time :-30	Yello Whit	w Copy - te Copγ -	AGAT							
			200	q.	400		-				1.0	-	_			LINC						



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		

- 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 (V1)

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(APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

Page 1 of 18

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AGAT WORK ORDER: 22X931131 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membran	e Filtration					
DATE RECEIVED: 2022-08-10								D	ATE REPORTI	ED: 2022-08-12	
	SA	MPLE DES	CRIPTION:	FLN-1-1	FLN-1-2	FLN-1-3	FLN-1-4	FLN-1-5	FLN-2-1	FLN-2-2	FLN-2-3
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLN-2-4	FLN-2-5		Outfall 1	Outfall 2	Outfall 3	Outfall 4	Outfall 5
		SAM	PLE 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
	SA			FI W-3-1 Above	FLW-3-2 Above	FI W-3-3 Above	FI W-3-4 Above	FI W-3-5 Above		FLW-7-1	FLW-7-2
			PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		-	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
	SA	MPLE DES	CRIPTION:	FLW-7-3	FLW-7-4	FLW-7-5	FLW-8-1	FLW-8-2	FLW-8-3	FLW-8-4	FLW-8-5
		SAM	PLE 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

Jason Cought

Certified By:



ATTENTION TO: Michael Brophy

SAMPLED BY:

AGAT WORK ORDER: 22X931131 PROJECT: 220804.00 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

SAMPLING SITE:

	eter Unit CFU/100 mL SAMP eter Unit CFU/100 mL SAMP eter Unit CFU/100 mL SAMP			E.co	oli Membrar	e Filtration					
DATE RECEIVED: 2022-08-10								[DATE REPORTI	ED: 2022-08-12	
				Inlet of First	Inlet of First	Inlet of First	Inlet of First	Inlet of First		Outlet of First	Outlet of First
	:	SAMPLE DES	CRIPTION:	Lake 1	Lake 2	Lake 3	Lake 4	Lake 5		Lake 1	Lake 2
		SAM	PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		Inlet of Fir. SAMPLE DESCRIPTION: Lake 1 SAMPLE TYPE: Water DATE SAMPLED: 2022-08-1 0 mL 1 2 0 mL 1 1 0 mL 1 1000 SAMPLE DESCRIPTION: FLS-4-5 SAMPLE DESCRIPTION: FLS-4-5 SAMPLE DESCRIPTION: FLS-4-5 SAMPLE AMPLED: 2022-08-1 10:59 G / S RDL 0 mL 1 1000 48000 4185218	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	Inlet of First Inlet of Lake 1 Lak Water Wa 2022-08-10 2022-0 07:40 07: 4185204 4185 192 18 Outlet of First Outlet of Cutlet of First Outlet of 2022-08-10 2022-01 192 18 Outlet of First Outlet of Yater Wa 2022-08-10 2022-0 11:50 11: 4185211 4185 9 5 FLS-4-5 Water 2022-08-10 10 10:59 4185218 4185218 RE 48000 10 FLN-3-1 FLN Water Wa 2022-08-10 2022-0 09:28 09: 4185224 4185	4185205	4185206	4185207	4185208	RDL	4185209	4185210
E. Coli (MF)	CFU/100 mL	1	2	192	180	198	152	124	1	7	7
				Outlet of First	Outlet of First	Outlet of First					
	:	SAMPLE DES	CRIPTION:	Lake 3	Lake 4	Lake 5		FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4
		SAM	PLE TYPE:	Water	Water	Water		Water	Water	Water	Water
		DATE	SAMPLED:		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	RDI		4185212	4185213	RDL	4185214	4185215	4185216	4185217
E. Coli (MF)		1			5	4	1000	35000	37000	35000	40000
	:	SAMPLE DES	CRIPTION:	FLS-4-5		FLW-3-1 Below	FLW-3-2 Below	FLW-3-3 Below	FLW-3-4 Below	FLW-3-5 Below	
		SAM	PLE TYPE:	Water		Water	Water	Water	Water	Water	
		DATE	SAMPLED:			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 DES	CRIPTION:	FLN-3-1	FLN-3-2	FLN-3-3	FLN-3-4	FLN-3-5		FLN-8-1	FLN-8-2
		SAM	PLE 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	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

Jason Cotophi



AGAT WORK ORDER: 22X931131 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8718 FAX (902)468-8924 http://www.agatlabs.com

SAMPLING SITE:

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	e Filtration					
DATE RECEIVED: 2022-08-10								I		ED: 2022-08-12	
	SA	MPLE DES	CRIPTION:	FLN-8-3	FLN-8-4	FLN-8-5		FLE-3-1	FLE-3-2	FLE-3-3	FLE-3-4
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLE-3-5		FLE-5-1	FLE-5-2	FLE-5-3	FLE-5-4	FLE-5-5	
		SAM	PLE 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	
	SA	MPLE DES	CRIPTION:	FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4	FLW-1-5		FLW-2-1	FLW-2-2
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLW-2-3	FLW-2-4	FLW-2-5		FLW-6-1		FLW-6-2	FLW-6-3
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLW-6-4	FLW-6-5		FLS-2-1	FLS-2-2	FLS-2-3	FLS-2-4	FLS-2-5
		SAM	PLE 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

Certified By:

Jason Court



AGAT WORK ORDER: 22X931131 PROJECT: 220804.00

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

SAMPLING SITE:

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	ne Filtration					
DATE RECEIVED: 2022-08-10								[DATE REPORT	ED: 2022-08-12	
										Inlet of Rocky	Inlet of Rocky
	5	SAMPLE DES	CRIPTION:	FLS-3-1	FLS-3-2	FLS-3-3	FLS-3-4	FLS-3-5		Lake 3	Lake 4
		SAM	PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		DATE	SAMPLED:	2022-08-10 11:09	2022-08-10 11:09	2022-08-10 11:09	2022-08-10 11:09	2022-08-10 11:09		2022-08-10 11:00	2022-08-10 11:00
Parameter	Unit	G/S	RDL	4185311	4185312	4185313	4185314	4185315	RDL	4185317	4185318
. Coli (MF)	CFU/100 mL	1	100	5400	5500	3300	5500	5100	1	13	12
				Inlet of Rocky	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Second	Outlet of	Outlet of
	:	SAMPLE DES	CRIPTION:	Lake 5	Lake 1	Lake 2	Lake 3	Lake 4	Lake 5	Second Lake 1	Second Lake
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-08-10 11:00	2022-08-10 07:30	2022-08-10 07:30	2022-08-10 07:30	2022-08-10 07:30	2022-08-10 07:30	2022-08-10 11:41	2022-08-10 11:41
Parameter	Unit	G/S	RDL	4185319	4185320	20 4185321 4185322 4185323		4185324	4185325	4185326	
. Coli (MF)	CFU/100 mL	1	1	12	3	1	<1	1	2	39	50
				Outlet of	Outlet of	Outlet of	Gully on				
	:	SAMPLE DES	CRIPTION:	Second Lake 3	Second Lake 4	Second Lake 5	Cavalier Drive 1	Cavalier Drive 2	Cavalier Drive 3	Cavalier Drive 4	Cavalier Drive
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-08-10 11:41	2022-08-10 11:41	2022-08-10 11:41	2022-08-10 07:58	2022-08-10 07:58	2022-08-10 07:58	2022-08-10 07:58	2022-08-10 07:58
Parameter	Unit	G/S	RDL	4185327	4185328	4185329	4185330	4185331	4185332	4185333	4185334
. Coli (MF)	CFU/100 mL	1	1	43	25	44	93	77	108	105	99
	:	SAMPLE DES	CRIPTION:	Inlet of Rocky 1	Inlet of Rocky 2						
		SAM	PLE TYPE:	Water	Water						
		DATE	SAMPLED:	2022-08-10 11:00	2022-08-10 11:00						
Parameter	Unit	G/S	RDL	4185335	4185336						
E. Coli (MF)	CFU/100 mL	1	1	20	39						

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 *)

Jason Coto

Certified By:



CLIENT NAME: CBCL LTD

Exceedance Summary

AGAT WORK ORDER: 22X931131 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8818 FAX (902)468-8924 http://www.agatlabs.com

ATTENTION TO: Michael Brophy

SAMPLE TITLE FLN-1-1 FLN-1-2 FLN-1-3 FLN-1-3 FLN-1-4 FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above FLW-3-5 Above	GUIDELINE NS-CDWQ excl [AO] NS-CDWQ excl [AO]	ANALYSIS PACKAGE E.coli Membrane Filtration E.coli Membrane Filtration	PARAMETER E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	RESULT 400 900 600 400 1300 1700 1000 1000 600
FLN-1-2 FLN-1-3 FLN-1-4 FLN-1-5 FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	900 600 400 1300 1700 1000 1000 600
FLN-1-3 FLN-1-4 FLN-1-5 FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	600 400 1300 1700 1000 1000 600
FLN-1-4 FLN-1-5 FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1 - 1 - 1 - 1	400 1300 1700 1000 1000 600
FLN-1-5 FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1 - 1	1300 1700 1000 1000 600
FLN-2-1 FLN-2-2 FLN-2-3 FLN-2-4 FLN-2-5 Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1 - 1	1700 1000 1000 600
FLN-2-2 FLN-2-3 FLN-2-4 FLN-2-5 Jnmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml CFU/100 ml	- 1 - 1 - 1	1000 1000 600
FLN-2-3 FLN-2-4 FLN-2-5 Jnmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml CFU/100 ml	_ 1 _ 1	1000 600
FLN-2-4 FLN-2-5 Jnmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF) E. Coli (MF)	CFU/100 ml CFU/100 ml	_ 1	600
FLN-2-5 Jnmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF) E. Coli (MF)	CFU/100 ml		
Unmarked Outfall 5 FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration E.coli Membrane Filtration	E. Coli (MF)		_ 1	
FLW-3-1 Above FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		1600
FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO] NS-CDWQ excl [AO]					2
FLW-3-2 Above FLW-3-3 Above FLW-3-4 Above	NS-CDWQ excl [AO]		E. Coli (MF)	CFU/100 ml	- 1	2800
FLW-3-3 Above FLW-3-4 Above		E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		1600
FLW-3-4 Above		E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		2300
	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		2600
	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		2900
						472
						492
						470
						458
						494
						328
						246
	• •					334
						260
						376
						192
						180
						198
						152
						124
						7
						7
	• •					9
						5
						5
						35000
						37000
						35000 40000
						48000
						5500 5800
	FLW-7-1 FLW-7-2 FLW-7-3 FLW-7-4 FLW-7-5 FLW-8-1 FLW-8-3 FLW-8-3 FLW-8-3 FLW-8-3 FLW-8-4 FLW-8-5 nlet of First Lake 1 nlet of First Lake 2 nlet of First Lake 3 nlet of First Lake 4 nlet of First Lake 5 utlet of First Lake 4 utlet of First Lake 5 utlet of First Lake 5 rLS-4-1 FLS-4-1 FLS-4-3 FLS-4-4 FLS-4-5 FLW-3-1 Below FLW-3-2 Below	FLW-7-1NS-CDWQ excl [AO]FLW-7-2NS-CDWQ excl [AO]FLW-7-3NS-CDWQ excl [AO]FLW-7-4NS-CDWQ excl [AO]FLW-7-5NS-CDWQ excl [AO]FLW-8-1NS-CDWQ excl [AO]FLW-8-3NS-CDWQ excl [AO]FLW-8-3NS-CDWQ excl [AO]FLW-8-4NS-CDWQ excl [AO]FLW-8-5NS-CDWQ excl [AO]FLW-8-5NS-CDWQ excl [AO]FLW-8-5NS-CDWQ excl [AO]Net of First Lake 1NS-CDWQ excl [AO]Net of First Lake 2NS-CDWQ excl [AO]Net of First Lake 3NS-CDWQ excl [AO]Net of First Lake 4NS-CDWQ excl [AO]Net of First Lake 5NS-CDWQ excl [AO]Net of First Lake 5NS-CDWQ excl [AO]Nutlet of First Lake 5NS-CDWQ excl [AO]Nutlet of First Lake 4NS-CDWQ excl [AO]Nutlet of First Lake 5NS-CDWQ excl [AO]Nutlet of First Lake 5NS-CDWQ excl [AO]FLS-4-1NS-CDWQ excl [AO]FLS-4-3NS-CDWQ excl [AO]FLS-4-4NS-CDWQ excl [AO]FLS-4-5NS-CDWQ excl [AO]	FLW-7-1NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-7-2NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-7-3NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-7-4NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-7-5NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-1NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-2NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-3NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-4NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-5NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-4NS-CDWQ excl [AO]E.coli Membrane FiltrationFLW-8-5NS-CDWQ excl [AO]E.coli Membrane FiltrationNet of First Lake 1NS-CDWQ excl [AO]E.coli Membrane FiltrationNet of First Lake 2NS-CDWQ excl [AO]E.coli Membrane FiltrationNet of First Lake 3NS-CDWQ excl [AO]E.coli Membrane FiltrationNet of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationNet of First Lake 5NS-CDWQ excl [AO]E.coli Membrane FiltrationNutlet of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationNutlet of First Lake 3NS-CDWQ excl [AO]E.coli Membrane FiltrationNutlet of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationNutlet of First Lake 5NS-CDWQ excl [AO]E.coli Membrane FiltrationFLS-4-1NS-CDWQ excl [AO]E.coli Membrane FiltrationFLS-4-2NS	FLW-7-1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-7-2NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-7-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-7-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-7-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-7-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-8-1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-8-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-8-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-8-5NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)FLW-8-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 2NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 5NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 5NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)het of First Lake 5<	FLW-7-1NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-7-2NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-7-3NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-7-4NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-7-5NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-8-1NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-8-2NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-8-3NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-8-4NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlFLW-8-5NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 1NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 2NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 3NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 4NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 5NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mlhet of First Lake 4NS-CDWQ exd [A0]E.coli Membrane FiltrationE. Coli	FLW-7-1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-7-2NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-7-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-7-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-7-5NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-8-1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-8-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-8-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-8-3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1FLW-8-4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1Iet of First Lake 1NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1Iet of First Lake 2NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1Iet of First Lake 3NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1Iet of First Lake 4NS-CDWQ excl [AO]E.coli Membrane FiltrationE. Coli (MF)CFU/100 mL1Iet of First Lake 5NS-CDWQ excl [AO]E.coli Membrane Filtrati



CLIENT NAME: CBCL LTD

Exceedance Summary

AGAT WORK ORDER: 22X931131 PROJECT: 220804.00

ATTENTION TO: Michael Brophy

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

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



Exceedance Summary

AGAT WORK ORDER: 22X931131 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8818 FAX (902)468-8924 http://www.agatlabs.com

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



11 Morris Drive, Unit 122 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 ORI	DER: 22X931131
PROJECT: 220804.00		ATTENTION TO: N	lichael 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

				Lab RECORI	oratorie	S		Ar Ar	rival rival	Conc Tem	dition perat	ure:	8	nly □ ^{God}	^d 7,7,		or (cor ob Nun	nplete	'note 2 <u>2</u>)	^{is')} K9;	311	31
Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com			Fax: 902-	2-468-8718 468-8924 888-468-871 labs.com	8			D	_					y/n):	Y,	Re	g. No					
Report To: CBCL Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barr Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation Client Project #: 220804.00 Invoice to: Same (Yes) - C		n St.		1. Name: Email: 2. Name: Email: Regulator PIRI D PIRI	Information Michael Brophy mbrophy@cbcl Melissa Fraser mfraser@cbcl.t y Requirements Site Info (check 1	ca (Ch all th	at app □ _{Coa}	ly): arse			Sing Sing Samper p Multi samper p Exce Form Inclu	at le ple page iple ples page ! nat		Turna Regula Rush T C Date Re Time Re	r TAT: 5 AT: 24 48 quired:	-	rking hours	days	5	red	janda 1990-19	A market
Company: Same as above Contact: Address: Phone: Fax: PO#:				🗖 Res/p	□ MAC/IMAC □ A / O □ NSDFOSP □ Other	Filtered / Preserved	Standard Water Analysis + TMS			ohyll A	*		cocci					Andrew Andrew		19 19 19 19 19	Hazardous (Y/N)	La San ;
SAMPLE IDENTIFICATION	SA	E / TIME MPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field F	Standar	N A	SRP	Chlorophyll	TSS	- E.Coll	Enterococci					13	Other:	Other:	Hazar	
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Page 10 of 18

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CHAIN OF CUSTODY Report to: Company: Same as COC#;				Lease Market		Field Filtered / Preserved Standard Water Analysis +		6.6.15		Chlarophyll A		ii Booocci		4	and a second	ST. NAME.					2	Other: Hazardous (Y/N)	L	_ab mple #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contamin	ant	Field Filt Standard	TKN	đ	SRP	Chlo	TSS	E.Coli			1-2	1		Luke D			Other:	Other Ha7		
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Report to: Company: <u>CBCL</u> Same as COC#:					Field Filtered / Preserve	d Water Analysis +				hyll A			occi	4	. we il 28			21/28/14				S. D. H. S. L	Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fi	Standaro	TKN	TP	SRP	Chlorophyll	TSS	E.Coli	Enterococci								Other:	Other:	Hazard	
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com	Phone: 902-468-871 Fax: 902-468-8924 Toll free: 888-468-8 www.agatlabs.com	orat RECOF	ories					La Arri Arri Not	bor a ival C ival T ies:	ato ondi emp Wat	ry u tion: eratu er Sa	i se ire:	On 8.(ly 3,4	Good (,,L	,8	<u>.</u>	GA-	Poor F Job	(com Numb	plete ber: <u>2</u>	'note		31	131
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barn Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation Client Project #: 220804.00 Invoice to: Same (Yes) - 0	n:		1. Name: Email: 2. Name: Email: Regulato □ PIRI □ <i>Tiel</i> □ <i>Tiel</i> □ <i>Tiel</i> □	Information Michael Brophy mbrophy@cbci Melissa Fraser miraser@cbci. ry Requirement Site Info (chec r 1	<u>ca</u> s (Cł k all tł Pot.	hat a □ C	pply): oarse				epor Single samp per pa samp per pa Excel Forma	t le age ble les age at		Tur Rege Rusi Date Time	TA TA	TAT T:	5 to 24 t 48 t	7 v	•				red		
Company: Same as above Contact: Address: Phone: PO#: Fax:			□ Ind. □ Con □ Res/p		tered / Preserved	d Water Analysis + TMS				bhyll A			occi						The second second second	ALCH246 24.0				Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	Cita/Cample	Field FI	Standard V	TKN	ць	SRP	Chlorophyll /	TSS	E.Coli	Enterococci			No.						Other:	Other:	azard	
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

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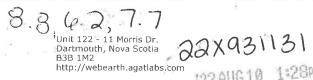
AGAT Laboratories

Report to: Company; CBCL Same as COC#;			40 50		Field Filtered / Preserved	Standard Water Analysis + 1				thyll A		Long May	occi			-11/23/12				のないない	Bearing and the second	Warren and		NUX # 18	Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fil	Standard	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci			nu. Sál				C SI SI	17		Other:	Other:	Hazard	
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Unit 122 - 11 Morris Dr.		ODY I hone: 90	RECORE 2-468-8718	or	atorie	5		A A N	rrival rrival otes:	Cono Tem	dition perat	: ure:	8.8	ly □∞ 6.2	od ٦.	<u>]</u> A				_			
Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com	т	ax: 902-4 oll free: 8 /ww.agatl	888-468-871	8					rinkin /aterv					/n):		-	Re	eg. No)				
Report To: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrin Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation: Client Project #: 220804.00 Invoice to: Same (Yes) - Cin			1. Name: Email: 2. Name: Email: Regulator	Mich Meli Meli y Re	ormation nael Brophy ophy@cbcl. ssa Fraser aser@cbcl.c quirements Site Info (check Res. P Comm. N	a (Ch all thi ot.	at appl ⊐ _{Coa}	y): rse] Mult sam	at le ple page iple ples page el nat		Rush T C	AT:	-: 5 to 24 to 48 to d:	7 wo 9 48	orking hour	g day s	s.			1=28pt
Company: Same as above Contact: Address: Phone: Fax: PO#:			□ CCME □ Ind, □ Com □ Res/p □ Ag □ FWAL		DWQ MAC/IMAC A / O ISDFOSP Other	ved	Standard Water Analysis + TMS	Construction of the second	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Chlorophyll A			Enterococci			100 - 10 - 10 - 10 - 10 - 10 - 10 - 10						Hazardous (Y/N)	Lab Sampl #
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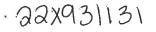
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com



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Report to: Company: CBCL Same as COC#:		5 5	ed / Preserv					A				4		-		ELNI -			'22	ATT ININ -	Lab	-		
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered	Standard Water	TKN	ΤP	SRP	Chlorophyll	TSS	E.Coli	Enterococci			0.000				No.	Other:	Other: Cother:	#	
Inlet of Rocky Lake 3	11:00am											i		Ē			5	200				10.		
Inlet of Rocky Lake 4	i							W.g				1						11		24		2.2		
Inlet of Rocky Lake 5	V							43		8.1				87. <u>1</u>				124						
Inlet of Second Lake 1	7:30am																24			24		2.4	_	
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Inlet of Second Lake 4). Desi						1												
Inlet of Second Lake 5	V									R al										12%				
Outlet of Second Lake 1*	11.41am											5			N.E.					81		18		
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Gully on Cavalier Drive 4								14		IIS AL												1] a
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Sample Relinquished By (sign)	16 ph	4.	Agic	a Samples Receiv	Ved B	en la la la la la la la la la la la la la	炙し	M)					e/Time	Whit	e Copy	/ - AGA1	NC	D:					



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

lotes		

- 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.
- 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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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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AGAT WORK ORDER: 22X931314 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

SAMPLED BY:

SAMPLING SITE:

CLIENT NAME: CBCL LTD

				E.co	oli Membrar	e Filtration					
DATE RECEIVED: 2022-08-10								I	DATE REPORT	ED: 2022-08-12	
Parameter	SUnit	-	CRIPTION: PLE TYPE: SAMPLED: RDL	Deep Station First Lake (deep) 1 Water 2022-08-10 13:27 4186956	Deep Station First Lake (deep) 2 Water 2022-08-10 13:27 4186958	Deep Station First Lake (deep) 3 Water 2022-08-10 13:27 4186959	Deep Station First Lake (deep) 4 Water 2022-08-10 13:27 4186960	Deep Station First Lake (deep) 5 Water 2022-08-10 13:27 4186961	Deep Station Rocky Lake (deep) 1 Water 2022-08-10 14:24 4186962	Deep Station Rocky Lake (deep) 2 Water 2022-08-10 14:24 4186963	Deep Station Rocky Lake (deep) 3 Water 2022-08-10 14:24 4186964
E. Coli (MF)	CFU/100 mL	1	1	9	6	3	7	4	5	1	4
Parameter	SUnit	-	CRIPTION: PLE TYPE: SAMPLED: RDL	Deep Station Rocky Lake (deep) 4 Water 2022-08-10 14:24 4186965	Deep Station Rocky Lake (deep) 5 Water 2022-08-10 14:24 4186966	Deep Station Second Lake (deep) 1 Water 2022-08-10 15:26 4186967	Deep Station Second Lake (deep) 2 Water 2022-08-10 15:26 4186968	Deep Station Second Lake (deep) 3 Water 2022-08-10 15:26 4186969	Deep Station Second Lake (deep) 4 Water 2022-08-10 15:26 4186970	Deep Station Second Lake (deep) 5 Water 2022-08-10 15:26 4186971	Deep Station First Lake (shallow) 1 Water 2022-08-10 13:27 4186972
E. Coli (MF)	CFU/100 mL	1	1	4	2	<1	1	2	<1	<1	5
Parameter	SUnit	-	CRIPTION: PLE TYPE: SAMPLED: RDL	Deep Station First Lake (shallow) 2 Water 2022-08-10 13:27 4186973	Deep Station First Lake (shallow) 3 Water 2022-08-10 13:27 4186974	Deep Station First Lake (shallow) 4 Water 2022-08-10 13:27 4186975	Deep Station First Lake (shallow) 5 Water 2022-08-10 13:27 4186976	Deep Station Rocky Lake (shallow) 1 Water 2022-08-10 14:24 4186977	Deep Station Rocky Lake (shallow) 2 Water 2022-08-10 14:24 4186978	Deep Station Rocky Lake (shallow) 3 Water 2022-08-10 14:24 4186979	Deep Station Rocky Lake (shallow) 4 Water 2022-08-10 14:24 4186980
E. Coli (MF)	CFU/100 mL	1	1	3	4	5	5	2	1	4	2
	s	DATES	PLE TYPE: SAMPLED:	Deep Station Rocky Lake (shallow) 5 Water 2022-08-10 14:24	Deep Station Second Lake (shallow) 1 Water 2022-08-10 15:26	Deep Station Second Lake (shallow) 2 Water 2022-08-10 15:26	Deep Station Second Lake (shallow) 3 Water 2022-08-10 15:26	Deep Station Second Lake (shallow) 4 Water 2022-08-10 15:26	Deep Station Second Lake (shallow) 5 Water 2022-08-10 15:26	Kinsmen Beach A Water 2022-08-10 13:20	
Parameter	Unit	G/S	RDL	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 WORK ORDER: 22X931314 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

E.coli Membrane Filtration											
DATE RECEIVED: 2022-08-10								DATE REPORTED: 2022-08-12			
			1	Kinsmen Beach	Kinsmen Beach	Kinsmen Beach	Kinsmen Beach				
	SA	MPLE DES	CRIPTION:	В	С	D	E				
		SAM	PLE 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 *)

Jason Cotoght

Certified By:



Exceedance Summary

AGAT WORK ORDER: 22X931314 PROJECT: 220804.00 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

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

Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com								Cond Temp g Wa	_	mple	4.4] Goo , २१. १५	d 2,	CAG	_	Liz'	ЗX	e 'not 77 93	13	14	
Report To: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrin Halifax NS B3J 2R7 Phone: 902-421-7241 FAX: PO#: AGAT Quotation: Client Project #: 220804.00 Invoice to: Same (Yes) - Cir	1. Name: Email: 2. Name: Email: Regulato: PIRI PIRI <i>Tie</i>	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						sample per page Multiple samples per page Excel			Turnaround Time (TAT) Required Regular TAT: 5 to 7 working days '22 AU(Rush TAT: 24 to 48 hours 48 to 72 hours Date Required:							ð 4=2			
Company: Same as above Contact: Address: Phone: Fax: PO#: SAMPLE IDENTIFICATION	DATE / TIME SAMPLI SAMPLED MATRI	□ Ind. □ Con □ Res/µ □ Ag □ FWAL	Com A/O Res/p NSDFOSP Ag Other FWAL # OF COMMENTS COMMENTS Site/Sample Comments Comment					Chiorophyll A	TSS ST	E.Coli M- CU	Enterococci		and the maintain the	and the second second				Other:	Other:	Hazardous (Y/N)	Lab Sample #
Deep Station First Lake (deep) 1 Deep Station First Lake (deep) 2	13:27		Info/Contaminant		S		SRP	Ū	<u>1</u>									0	õ		
Deep Station First Lake (deep) 3 Deep Station First Lake (deep) 4 Deep Station First Lake (deep) 5					5									80					12		
Deep Station Rocky Lake (deep) 1 Deep Station Rocky Lake (deep) 2	14: <u>2</u> 4										12			1							
Deep Station Rocky Lake (deep) 3 Deep Station Rocky Lake (deep) 4						1000		200 F			The second				10110		-				
Deep Station Rocky Lake (deep) 5 Deep Station Second Lake (deep) 1	15:2p					100					1000										
Deep Station Second Lake (deep) 2 Sample Relinquished By (print name) Melesse Fraser Sample Relinquished By (sign)	- · · · · · · · · · · · · · · · · · · ·	4:16pm	Samples Receive		/		ne)	7		4		Time Time	Yellow	Сору - Сору - Сору - Сору -	AGAT	Pa NO	nge_		C	of	2



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CHAIN OF CUSTODY RECORD

Report to: Company: CBCL Same as COC#:	î		ered / Presen	Water Analysis +	18,22,00		hyll A	C. C.				No of the second	100000000000000000000000000000000000000		18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Hazardous (Y/N)	Lab ample #		
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE # O MATRIX CONTAIN		Field Filtered	Standard TKN	ЧL	SRP	Chlorophyll	TSS	Enterococ	18				1		Other:	Other:	Hazard		
Deep Station Second Lake (deep) 3	15:25				5	181			1		÷- ,			20	80						1
Deep Station Second Lake (deep) 4					- Carl	1							5.m ¹			23					1
Deep Station Second Lake (deep) 5	V				5	1 set		T							15	5					1
Deep Station First Lake (shallow) 1	13:27		-			5		4.1	3	1	*7=		1.50		20	-114		1-1			1
Deep Station First Lake (shallow) 2	l				10	1.51					188		1.00		12						1
Deep Station First Lake (shallow) 3					No.					1			The second	16	12	198	20	AII	14		1
Deep Station First Lake (shallow) 4			5		29			1					b.A				-	120	10	412	北明
Deep Station First Lake (shallow) 5	V				1							the state	EY								1
Deep Station Rocky Lake (shallow) 1	14:24								1				20.0					10			1
Deep Station Rocky Lake (shallow) 2									1		12:0		23								1
Deep Station Rocky Lake (shallow) 3									1		1-0	10	100		2						1
Deep Station Rocky Lake (shallow) 4									1	0			30			R					1
Deep Station Rocky Lake (shallow) 5	V					12				-9					1			110			1
Deep Station Second Lake (shallow) 1	15:26					100		I II		10	ligst		20	8	10			1			1
Deep Station Second Lake (shallow) 2	1				n []	12.3		Sec. XI	1	2			2 1 1			17		1200			1
Deep Station Second Lake (shallow) 3					1	1.4		1255	1	2	10.00				15.0	24		123			1
Deep Statlon Second Lake (shallow) 4					13	in.		Manak	1	2	0.00	100						1			1
Deep Station Second Lake (shallow) 5											n el					145					1
Kinsmen Beach	13:20				2.4	ind.					MEN.		100			21		1131			1
Kinsmen Beach	1					18		2					1000			8					1
Kinsmen Beach											Dest	i al				103					1
Kinsmen Beach					633			inse.			1.2	1.22	10								
Kinsmen Beach	V												100	1		35					1
Inlet of Rocky Lake-1-				1	100											105		103			1
Infet of Rocky Lake 2									1	Y					15						1
Sample Relinquished By (print name)		Date/T	ime Samples Receiv	ved By (print r	name	2)	\sim		Da	te/Time	Pink C	opy - Cli	ent	Page	e	2	_ of		2	1
Sample Relinquished By (sign)		Date/T	ime Samples Receiv		()	n	J	\mathcal{I}		Da	te/Time	Yellow (Сору - А Сору - А	GAT GAT	NO:		~		-0-]



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: 22X934525 MICROBIOLOGY ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor DATE REPORTED: Aug 29, 2022 PAGES (INCLUDING COVER): 21 VERSION*: 1

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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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AGAT WORK ORDER: 22X934525 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	ne Filtration					
DATE RECEIVED: 2022-08-	18							I	DATE REPORTE	ED: 2022-08-29	
	SA	MPLE DES	CRIPTION:	FLW-1-1	FLW-1-2	FLW-1-3	FLW-1-4	FLW-1-5	FLW-2-1	FLW-2-2	FLW-2-3
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLW-2-4	FLW-2-5		FLW-6-1	FLW-6-2	FLW-6-3	FLW-6-4	FLW-6-5
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLS-2-1	FLS-2-2	FLS-2-3	FLS-2-4	FLS-2-5		FLS-3-1	FLS-3-2
	-	SAM	PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		DATE	SAMPLED:	2022-08-18	2022-08-18	2022-08-18	2022-08-18	2022-08-18		2022-08-18	2022-08-18
				10:50	10:50	10:50	10:50	10:50		10:25	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
	SA	MPLE DES	CRIPTION:	FLS-3-3	FLS-3-4	FLS-3-5		FLN-3-1		FLN-3-2	FLN-3-3
		SAM	PLE 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
	SA	MPLE DES	CRIPTION:	FLN-3-4	FLN-3-5		FLN-4-1	FLN-4-2	FLN-4-3	FLN-4-4	FLN-4-5
	-	SAM	PLE 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:

Jason Court



AGAT WORK ORDER: 22X934525 PROJECT: 220804.00 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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.co	oli Membrar	e Filtration					
DATE RECEIVED: 2022-08-18								I	DATE REPORTI	ED: 2022-08-29	
	S	AMPLE DES	CRIPTION:	FLN-8-1	FLN-8-2	FLN-8-3	FLN-8-4	FLN-8-5		FLE-3-1	FLE-3-2
		SAM	PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
			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
. Coli (MF)	CFU/100 mL	1	2	466	494	604	440	592	1	>200	>200
	s	AMPLE DES	CRIPTION:	FLE-3-3	FLE-3-4	FLE-3-5		FLE-5-1	FLE-5-2	FLE-5-3	FLE-5-4
		SAM	PLE 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
. Coli (MF)	CFU/100 mL	1	1	>200	>200	>200	2	246	240	256	264
						Deep Station					
	-					First Lake	Rocky Lake				
	S	AMPLE DES		FLE-5-5		(deep) 1	(deep) 2	(deep) 3	(deep) 4	(deep) 5	(deep) 1
		-	PLE TYPE: SAMPLED:	Water 2022-08-18 12:40		Water 2022-08-18 07:30	Water 2022-08-18 07:30	Water 2022-08-18 07:30	Water 2022-08-18 07:30	Water 2022-08-18 07:30	Water 2022-08-18 09:20
Parameter	Unit	G/S	RDL	4215884	RDL	4215885	4215886	4215887	4215888	4215889	4215890
. Coli (MF)	CFU/100 mL	1	2	280	1	40	29	22	28	25	2
				Deep Station	Deep Station	Deep Station	Deep Station	Deep Station	Deep Station	Deep Station	Deep Statior
				Rocky Lake	Rocky Lake	Rocky Lake	Rocky Lake	Second Lake	Second Lake	Second Lake	Second Lak
	S	AMPLE DES	CRIPTION:	(deep) 2	(deep) 3	(deep) 4	(deep) 5	(deep) 1	(deep) 2	(deep) 3	(deep) 4
		SAM	PLE 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
. Coli (MF)	CFU/100 mL	1	1	<1	6	1	3	2	<1	2	<1

Joson Cough

Certified By:



AGAT WORK ORDER: 22X934525 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-8718 FAX (902)468-8924 http://www.agatlabs.com

ATTENTION TO: Michael Brophy

SAMPLING SITE:

CLIENT NAME: CBCL LTD

E.coli Membrane Filtration

DATE RECEIVED: 2022-08-18								[DATE REPORT	ED: 2022-08-29	
				Deep Station	Deep Statio						
				Second Lake	First Lake	First Lake	First Lake	First Lake	First Lake	Rocky Lake	Rocky Lake
	SA	AMPLE DES	CRIPTION:	(deep) 5	(shallow) 1	(shallow) 2	(shallow) 3	(shallow) 4	(shallow) 5	(shallow) 1	(shallow) 2
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-08-18 08:30	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 09:30	2022-08-18 09:30
Parameter	Unit	G/S	RDL	4215899	4215900	4215901	4215902	4215903	4215904	4215905	4215906
. Coli (MF)	CFU/100 mL	1	1	<1	2	3	3	3	5	6	6
				Deep Station	Deep Statio						
				Rocky Lake	Rocky Lake	Rocky Lake	Second Lake	Second Lake	Second Lake	Second Lake	Second La
	SA	AMPLE DES	CRIPTION:	(shallow) 3	(shallow) 4	(shallow) 5	(shallow) 1	(shallow) 2	(shallow) 3	(shallow) 4	(shallow)
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-08-18 09:30	2022-08-18 09:30	2022-08-18 09:30	2022-08-18 08:30	2022-08-18 08:30	2022-08-18 08:30	2022-08-18 08:30	2022-08-1 08:30
Parameter	Unit	G/S	RDL	4215907	4215908	4215909	4215910	4215911	4215912	4215913	4215914
. Coli (MF)	CFU/100 mL	1	1	4	4	4	<1	2	1	1	1
				Kinsmen Beach		Inlet of Rocky	Inlet of Roc				
	SA	AMPLE DES	CRIPTION:	Α	В	С	D	E		Lake 1	Lake 2
			PLE TYPE:	Water	Water	Water	Water	Water		Water	Water
		DATE	SAMPLED:	2022-08-18 07:15	2022-08-18 07:15	2022-08-18 07:15	2022-08-18 07:15	2022-08-18 07:15		2022-08-18 13:30	2022-08-1 13:30
Parameter	Unit	G/S	RDL	4215915	4215916	4215917	4215918	4215919	RDL	4215920	4215921
Coli (MF)	CFU/100 mL	1	2	100	90	86	178	106	1	6	5
				Inlet of Rocky	Inlet of Rocky	Inlet of Rocky	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Second	Inlet of Seco
	SA	AMPLE DES	CRIPTION:	Lake 3	Lake 4	Lake 5	Lake 1	Lake 2	Lake 3	Lake 4	Lake 5
	0,	-	PLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
		-	SAMPLED:	2022-08-18 13:30	2022-08-18 13:30	2022-08-18 13:30	2022-08-18 12:20	2022-08-18 12:20	2022-08-18 12:20	2022-08-18 12:20	2022-08-1 12:20
				13:30	13:30	13:30	12:20	12:20	12:20	12:20	12:20
Parameter	Unit	G/S	RDL	4215922	4215923	4215924	4215925	4215926	4215927	4215928	4215929

Certified By:

Jasa Cota



DATE SAMPLED:

G/S

1

RDL

1

Unit

CFU/100 mL

2022-08-18

08:35

4215961

11

Certificate of Analysis

AGAT WORK ORDER: 22X934525 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

2022-08-18

09:00

4215964

3900

CLIENT NAME: CBCL LTD

SAMPLING SITE:							SAMPLE	D BY:			
				E.cc	oli Membrar	ne Filtration					
DATE RECEIVED: 2022-08-18								D	ATE REPOR	FED: 2022-08-29	
Parameter	Unit	SAM	CRIPTION: PLE TYPE: SAMPLED: RDL	Outlet of Second Lake 1 Water 2022-08-18 08:45 4215930	Outlet of Second Lake 2 Water 2022-08-18 08:45 4215931	Outlet of Second Lake 3 Water 2022-08-18 08:45 4215932	Outlet of Second Lake 4 Water 2022-08-18 08:45 4215933	Outlet of Second Lake 5 Water 2022-08-18 08:45 4215934	RDL	Gully on Cavalier Drive 1 Water 2022-08-18 12:40 4215944	Gully on Cavalier Drive 2 Water 2022-08-18 12:40 4215945
E. Coli (MF)	CFU/100 mL		1	27	39	34	25	24	100	2100	2800
Parameter E. Coli (MF)	Unit CFU/100 mL	SAM DATE G/S	CRIPTION: PLE TYPE: SAMPLED: RDL 100	Gully on Cavalier Drive 3 Water 2022-08-18 12:40 4215946 2400	Gully on Cavalier Drive 4 Water 2022-08-18 12:40 4215947 1900	Gully on Cavalier Drive 5 Water 2022-08-18 12:40 4215948 1900	FLN-1-1 Water 2022-08-18 08:00 4215949 2800	FLN-1-2 Water 2022-08-18 08:00 4215950 2600	FLN-1-3 Water 2022-08-18 08:00 4215951 2300	FLN-1-4 Water 2022-08-18 08:00 4215952 3200	FLN-1-5 Water 2022-08-18 08:00 4215953 2000
Parameter	Unit	DATE G/S	PLE TYPE: SAMPLED: RDL	FLN-2-1 Water 2022-08-18 07:20 4215954	FLN-2-2 Water 2022-08-18 07:20 4215955	FLN-2-3 Water 2022-08-18 07:20 4215956	FLN-2-4 Water 2022-08-18 07:20 4215957	FLN-2-5 Water 2022-08-18 07:20 4215958	RDL	Unmarked Outfall 1 Water 2022-08-18 08:35 4215959	Unmarked Outfall 2 Water 2022-08-18 08:35 4215960
E. Coli (MF)	CFU/100 mL	SAMPLE DES	100 SCRIPTION: PLE TYPE:	6300 Unmarked Outfall 3 Water	5800 Unmarked Outfall 4 Water	5600 Unmarked Outfall 5 Water	3900	5700 FLW-7-1 Water	1 FLW-7-2 Water	3 FLW-7-3 Water	3 FLW-7-4 Water

Certified By:

RDL

100

Jason Cotto

2022-08-18

09:00

4215966

2500

2022-08-18

09:00

4215965

2800

Parameter

E. Coli (MF)

2022-08-18

08:35

4215962

2

2022-08-18

08:35

4215963

2

2022-08-18

09:00

4215967

2200



AGAT WORK ORDER: 22X934525 PROJECT: 220804.00

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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

SAMPLING SITE:

ATTENTION TO: Michael Brophy

SAMPLED BY:

				E.cc	oli Membran	e Filtration					
DATE RECEIVED: 2022-08-18								[DATE REPORT	ED: 2022-08-29	
											Inlet of First
	5	SAMPLE DES	CRIPTION:	FLW-7-5	FLW-8-1	FLW-8-2	FLW-8-3	FLW-8-4	FLW-8-5		Lake 1
		SAM	PLE TYPE:	Water	Water	Water	Water	Water	Water		Water
		DATE	SAMPLED:	2022-08-18 09:00	2022-08-18 08:50	2022-08-18 08:50	2022-08-18 08:50	2022-08-18 08:50	2022-08-18 08:50		2022-08-18 08:00
Parameter	Unit	G/S	RDL	4215968	4215969	4215970	4215971	4215972	4215973	RDL	4215974
. Coli (MF)	CFU/100 mL	1	100	2100	4100	3000	3500	3200	3800	2	>400
				Inlet of First	Inlet of First	Inlet of First	Inlet of First		Outlet of First	Outlet of First	Outlet of Firs
	5	SAMPLE DES	CRIPTION:	Lake 2	Lake 3	Lake 4	Lake 5		Lake 1	Lake 2	Lake 3
		SAM	PLE TYPE:	Water	Water	Water	Water		Water	Water	Water
		DATE	SAMPLED:	2022-08-18 08:00	2022-08-18 08:00	2022-08-18 08:00	2022-08-18 08:00		2022-08-18 11:00	2022-08-18 11:00	2022-08-18 11:00
Parameter	Unit	G/S	RDL	4215975	4215976	4215977	4215978	RDL	4215979	4215980	4215981
. Coli (MF)	CFU/100 mL	1	2	>400	>400	>400	>400	1	169	196	216
				Outlet of First	Outlet of First						
	5	SAMPLE DES	CRIPTION:	Lake 4	Lake 5		FLS-4-1	FLS-4-2	FLS-4-3	FLS-4-4	FLS-4-5
		SAM	PLE TYPE:	Water	Water		Water	Water	Water	Water	Water
		DATE	SAMPLED:	2022-08-18 11:00	2022-08-18 11:00		2022-08-18 10:15	2022-08-18 10:15	2022-08-18 10:15	2022-08-18 10:15	2022-08-18 10:15
Parameter	Unit	G/S	RDL	4215982	4215983	RDL	4215984	4215985	4215986	4215987	4215988
. Coli (MF)	CFU/100 mL	1	1	160	178	1000	42000	39000	39000	40000	40000
	5	SAMPLE DES	CRIPTION:	FLW-3-1 After	FLW-3-2 After	FLW-3-3 After	FLW-3-4 After	FLW-3-5 After			
		SAM	PLE TYPE:	Water	Water	Water	Water	Water			
		DATE	SAMPLED:	2022-08-18 09:45	2022-08-18 09:45	2022-08-18 09:45	2022-08-18 09:45	2022-08-18 09:45			
Parameter	Unit	G/S	RDL	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 *)

Certified By:

Jason Coto



CLIENT NAME: CBCL LTD

Exceedance Summary

AGAT WORK ORDER: 22X934525 PROJECT: 220804.00

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

ATTENTION TO: Michael Brophy

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 m	_ 1	31000
4215826	FLW-1-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	29000
4215827	FLW-1-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	25000
4215828	FLW-1-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	26000
4215829	FLW-1-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	24000
4215830	FLW-2-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	22000
4215831	FLW-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	5000
4215832	FLW-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	11000
4215833	FLW-2-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	11000
4215834	FLW-2-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	5000
4215835	FLW-6-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	8300
4215836	FLW-6-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	8400
4215837	FLW-6-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	7100
4215838	FLW-6-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 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 m	L 1	26
4215841	FLS-2-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m	_ 1	12
4215842	FLS-2-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 m		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 m	_ 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 m	_ 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 m	_ 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		291
4215861	FLN-3-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		310
4215862	FLN-3-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		264
4215863	FLN-3-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		300
4215864	FLN-3-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		312
4215865	FLN-4-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		1100
4215866	FLN-4-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		600
4215867	FLN-4-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		1200
4215868	FLN-4-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		500
4215869	FLN-4-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		1200
4215870	FLN-8-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		466
4215871	FLN-8-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		494
4215872	FLN-8-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		604
4215873	FLN-8-4	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		440
4215874	FLN-8-5	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		592
4215880	FLE-5-1	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		246
4215881	FLE-5-2	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		240
4215882	FLE-5-3	NS-CDWQ excl [AO]	E.coli Membrane Filtration	E. Coli (MF)	CFU/100 ml		240



Exceedance Summary

AGAT WORK ORDER: 22X934525 PROJECT: 220804.00 11 Morris Drive, Unit 122 Dartmouth, Nova Scotia CANADA B3B 1M2 TEL (902)468-88718 FAX (902)468-8924 http://www.agatlabs.com

CLIENT NAME: CBCL LTD

ATTENTION TO: Michael Brophy

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



Exceedance Summary

AGAT WORK ORDER: 22X934525 PROJECT: 220804.00 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

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



11 Morris Drive, Unit 122 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 OF	RDER: 22X934525
PROJECT: 220804.00		ATTENTION TO:	Michael Brophy
SAMPLING SITE:		SAMPLED BY:	
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis	L		
E. Coli (MF)	MIC-121-7002	SM 9222 H	MF/INCUBATOR

Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com	Phone: Fax: 90 Toll free	C Laboratories FRECORD 902-468-8718 92-468-8924 e: 888-468-8718 gatlabs.com	Notes:	Good Poor (complete 'notes') ure: 0.5, 0.9, 8,9 AGAT Job Number: 22 x 934525 ample (y/n): Reg. No
Report To: CBCL Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barr Halifax NS B3J 2R7 Phone: 902-421-7241 FAX: PO#: AGAT Quotation Client Project #: 220804.00 Invoice to: Same (Yes) - C Company: Same as above		Report Information 1. Name: Michael Brophy Email: mbrophy@cbcl.ca 2. Name: Melissa Fraser Email: mfraser@cbcl.ca 2. Name: mfraser@cbcl.ca Regulatory Requirements (Check): PIRI Site Info (check all that apply Tier 1 Tier 1 Res. Pot. Tier 2 Comm. N/Pot. CCME CDWQ State		t Regular TAT: age □ 5 to 7 working days Rush TAT: □ 24 to 48 hours □ 48 to 72 hours Date Required:
Contact: Address: Phone: Fax: PO#:	DATE / TIME SAMPLE	$\Box Ind. \Box MAC/IMAC$ $\Box Com \Box A/O$ $\Box Res/p \Box NSDFOSP$ $\Box Ag \Box Other$ $\Box FWAL$	TP SRP Chlorophyll A TSS	Enterococci Enterococci # Paral Para
SAMPLE IDENTIFICATION FLW - 1 - 1 FLW - 1 - 2 FLW - 1 - 3	idan		TP SRP Chlor TSS	Entero
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FLW - 2 - 3 FLW - 2 - 4 FLW - 2 - 5 FLW - 4 - 1				
FL <u>W - 4 - 2</u> Sample Relinquished By (print name) Sample Relinquished By (sign)		Date/Time Samples Received By (print n Date/Time Samples Received By (sign)	ame)	Date/Time Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT NO:





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

22×934525

CHAIN OF CUST	OD	Y
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SAMPLE IDENTIFICATION	DAT	E / TIME	SAMPLE	- # OF	COMMENTS -	Field Filtered / Preserve	Standard Water Analysis +		Contraction of the		Chlorophyll A		11 × 11 × 11	Enterococci					Charles (S ENK OF N	191 - 184 - 184			Hazardous (Y/N)	Lab Sample #	
	SA	TE / TIME		CONTAINERS	Site/Sample Info/Contaminant	Field	Stan	TKN	ЧT	SRP	Chlo	TSS	E.Coli	Ente		3						Other:	Other:	Haza		
FLW-4-3													1					2			19-11					
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com		Phone: 9 Fax: 902 Toll free:	Labo RECORI 002-468-8718 -468-8924 888-468-87 atlabs.com	3				Arr Arr Not Dri	tes:	Cond Tem	lition perat	i: ture: Sami	De (\$ <mark>.</mark>	_				or (con ob Num g. No,		_	_		525
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrin Halifax NS B3J 2R7 Phone: 902-421-7241 FAX: PO#: AGAT Quotation: Client Project #: 220804.00 Invoice to: Same (Yes) - Cin Company: Same as above			1. Name: Email: 2. Name: Email: Regulato PIRI PIRI <u>Tie</u> Tie	Information Michael Brophy mbrophy@cbcl Melissa Fraser mfraser@cbcl. ry Requirement Site Info (checl r 1	ca s (Cl < all th Pot.	hat a C	ipply) coars			F	Sing sam per (Mult sam per (Exce Form Inclu	at le ple page ples page l nat			ular h TA	TAT: 5 T: 2 4 uired	to 7 4 to 8 to	7 wo 48	(TA 1 rking hours hours	days		AU	513	2 2 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 4 5 4 5
Contact: Address: Phone: PO#: SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	□ Ind. □ Con □ Res/µ □ Ag □ FWAL	☐ MAC/IMAC 1 □ A / O □ NSDFOSP □ Other	Field Filtered / Preserved	Standard Water Analysis + TMS	TKN	4t	SRP	Chlorophyll A	TSS	E.Coli	Enterococci								Other:	Other:	Hazardous (Y/N)	Lab Sample #
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com

CHAIN OF CUSTODY RECORD

CHAIN OF (CUSTODY RECO	RD																		Ő	22	× C	131	45	25
Report to: Company: Same as COC#:	CBCL			=2		Filtered / Preserve	Water Analysis +		- 8 - 1 - 1		hyll A			occi		A BURNELS			and the second se					(N/A	Lab Sample #
SAMPLE	IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fil	Standard \	TKN	ΤP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	5-0							Other:	Other:	azardo	
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ample Refinquished	l By (sign)			Date/Time	Samples Received	d By	(sigr	n	- /	/	1	1		Date,	/Time	Yello	w Copy	- AGAT	_	aye			01		
NALS	the				a	E	1	h	1	~							c copy	AGAI	NC):					



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

CHAIN OF CUSTODY RECORD

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Report to: Company: <u>CBCL</u>					Preserved	+ s				3							3			2.1	Γ]	
Same as COC#:					/ Pres	Analy:		-															(N/	Lab		
					Field Filtered	Standard Water Analysis +				Chlorophyll A		8.8	occi						-				Hazardous (Y/N)	Sample #		
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	ield Fi	tandan	TKN	d.	SRP	hlorop	TSS	E.Coli	Enterococci	54	2					12	Other:	Other:	azard			
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FLE - 3 - 4					-				-			+					1				-		-			
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Sample Relinquiched By (sign)			Date/Time	Samples Receiv	ed By	(sigr	2		>	/			Date	e/Time	Whi	te Cop	y - AGA y - AGA	J T	0:							
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		Phone: 9 Fax: 902 Toll free:		}				Arri Arri Not Drir	val (val 1 es: nking	Conc Temp		i: ture Sam	ple (_		oor (c Job N eg. N		_		_		525
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Barrin Halifax NS B3J 2R7 Phone: 902-421-7241 FAX: PO#: AGAT Quotation: Client Project #: 220804.00 Invoice to: Same (Yes) - Cin Company: Same as above			1. Name: Email: 2. Name: Email: Regulato PIRI PIRI <u>Tie</u>	Information Michael Brophy mbrophy@cbcl Melissa Fraser mfraser@cbcl. ry Requirement Site Info (checl r 1	<mark>ca</mark> s (Cl k all t Pot.	hat a □ C .□ F	oarse			F	Mult	at Ile ple page ples page Il		Tur Reg Rus Date Time	ular TAT	rat 5 2 4 uired	; 5 to 24 to 18 to	7 w o 48	e (TA orkir hou hou	ng d Irs			red		
Contact: Address: Phone: PO#: SAMPLE IDENTIFICATION	DATE / TIME	SAMPLE	□ Ind. □ Con □ Res/µ □ Ag □ FWAL # OF	D □ NSDFOSP □ Other	Filtered / Preser	Standard Water Analysis + TMS	2		0	Chlorophyll A	(0	oli	Enterococci	a Markadara					CELLANDER			De	er:	Hazardous (Y/N)	Lab Sample #
Deep Station First Lake (deep) 1	SAMPLED AUS 18 7:30am	MATRIX	CONTAINERS	Info/Contaminant	Field	Sta	TKN	TP	SRP	CHI	TSS	E.Coli	Ent		0		N IN	5		-		Other:	Other:	Haz	
Deep Station First Lake (deep) 2	7:30							10080		51					1	N.	5	6				_			
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Deep Station First Lake (deep) 5	V					21						T									0		90		
Deep Station Rocky Lake (deep) 1	9:20					1		10		Ē		+		1.51				3		-			1.80		
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Deep Station Rocky Lake (deep) 3						1.3						1	_	1000				10				_			
Deep Station Rocky Lake (deep) 4										- 224	-	1													
Deep Station Rocky Lake (deep) 5												+			10									_	
Deep Station Second Lake (deep) 1	8:30					109						+			-	2		1							
Deep Station Second Lake (deep) 2									\neg			+	-	Aug.	-		12		1	-				-	
Sample Relinquished By (print name)				Samples Receive	0	1		ame)					Da	te/Tin				Client		l Page			of		
Sample Relinquished By (sign)			Date/Time	Samples Receive	d By	(sig	in)						Dat	te/Tin				- AGAT							





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#:			11 11			Field Filtered / Preserve	Water Analysis +		H. And		II A		12 34	C)		1 Mail					Contraction of			s (Y/N)	Lab Sample
SAMPLE IDENTIFICATION	DATE , SAM	/ TIME PLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filter	Standard W	TKN	ТÞ	SRP	Chiorophyll	TSS	E.Coli	Enterococci							1 200	Other:	Other:	Hazardous (Y/N)	#
Deep Station Second Lake (deep) 3	830	am					1.00					-	1	_	8						10				
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Deep Station Second Lake (deep) 5	V										1000			1	di	1			1		1				
Deep Station First Lake (shallow) 1	1:30	an					150		1.						3		-				1			\square	
Deep Station First Lake (shallow) 2	I						. 21				201				sn	1.1.1			1			-			
Deep Station First Lake (shallow) 3													1			2.2			1	3	100		30		
Deep Station First Lake (shallow) 4									1				1		3										
Deep Station First Lake (shallow) 5	V						100						Ħ			1		125					1		
Deep Station Rocky Lake (shallow) 1	9:30	an					511									133							125		
Deep Station Rocky Lake (shallow) 2	I						164								1	121					19		1		
Deep Station Rocky Lake (shallow) 3							- 35		in.		1				-2	1.28		12					1		
Deep Station Rocky Lake (shallow) 4													T			10-					54				
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Deep Station Second Lake (shallow) 1	8:3c	am										1			2										
Deep Station Second Lake (shallow) 2	1												\uparrow					8							
Deep Station Second Lake (shallow) 3							4 (]				En/		T			inter i					10				
Deep Station Second Lake (shallow) 4											37										100				
Deep Station Second Lake (shallow) 5														1	.8						0		1.5		
Kinsmen Beach 🗛	7:15	am					n î					-			2								wit -		
Kinsmen Beach \mathcal{R}							2.2		1									5			1	1	3		
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Kinsmen Beach	V						t st		1					1	-	2		10	10				11		
Inlet of Rocky Lake 1	1:30	pon					2		14.		-							1.2			100		20		
Inlet of Rocky Lake 2	1						281		101				tt		ii.	135					1923	1			
Sample Relinquished By (print name) Sample Relinquished By (sign)					Samples Receive	1	1		ime)	7					/Time /Time	Pin Yello	w Cop	- Clier y - AG		Pag	je_	1	of		
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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#:			-		ed / Preserve	ster Analysis +				A					10000								1618	(N/N) \$	Lab Sample
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered	Standard Water	TKN	TP	SRP	Chlorophyll A	TSS	E.Coli	Enterococci	(Internal								Other:	Other:	Hazardous (Y/N)	#
Inlet of Rocky Lake 3	1:30											1						8		1		<u> </u>		-	
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Inlet of Rocky Lake 5	V							-25		Inte									12				1.1		
Inlet of Second Lake 1	12:20					1				100		T				-	1		18			-			
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Inlet of Second Lake 3						1.55				133		1		18		1			1.01					_	
Inlet of Second Lake 4								5.0		-		\top					1		17				1		
Inlet of Second Lake 5															1	10			1					_	
Outlet of Second Lake 1	8:45								-					3				1	1						
Outlet of Second Lake 2									-	- 32									12		T				
Outlet of Second Lake 3														51	1								100		
Outlet of Second Lake 4																			1				28		
Outlet of Second Lake 5												1							1	-	1	-			
Gully on Cavalier Drive 1	12:40													114											
Gully on Cavalier Drive 2	1					2.1										2	20			-					
Gully on Cavalier Drive 3								1000							15		12		1.5						
Gully on Cavalier Drive 4						161		4							-			1	18				10754		
Gully on Cavalier Drive 5	V					and.				-							1				123			_	
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Sample Relinquished By (print name)				Samples Receive		/	7	ame))					e/Tim				Client - AGAT		Page	8	, >	of		
Sample Relinquished By (sign)				Samples Receive	ed By	tsig			D				Date	e/Tim	e \	White	Сору	AGAT	N	D:					

		TODY Phone: 9 Fax: 902 Toll free:			S			Arr Arr Not Dri	tes:(Cond Cemp DO Wa	lition peratological olegical	ture	- <u>15</u> - ple (5,	Good				_					45	25
Report To: Company: CBCL Contact: Michael Brophy Address: Suite 901, 1505 Bar Halifax NS B3J 2R7 Phone: 902-421-7241 PO#: AGAT Quotation Client Project #: 220804.00 Invoice to: Same (Yes) - 0 Company: Same as above	i		1. Name: Email: 2. Name: Email: Regulator PIRI PIRI <u>Tier</u>	Information Michael Brophy mbrophy@cbcl Melissa Fraser mfraser@cbcl. y Requirements Site Info (check 1	<u>ca</u> s (Ch < all th ⊃ot.	nat a □ _C .□ F	pply) coars			F	Mult sam	at ple page iple ples page el nat		Reg Rus Date	ular ular h TA	FAT: 5 7: 24 48 uired:	to 7 4 to 8 to	wor 48 h	king nour	g da s		luir	ed		
Contact: Address: Phone: Fax: PO#:	DATE / TIME	SAMPLE	□ Res/p □ Ag □ FWAL	MAC/IMAC A / O SDFOSP Other COMMENTS	Filtered / Preser	Standard Water Analysis + TMS		ALL SLEED		Chiorophyll A		II THE REPORT	Enterococci								Million			Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION FLN - 1 - 1	SAMPLED	MATRIX	# OF CONTAINERS	Site/Sample Info/Contaminant	Field	Stand	TKN	₽	SRP	Chlo	TSS	- E.Coli	Ente		_				1			Other:	Other:	Haza	
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FLN - 2 - 1	7.20am					12	-	150		201-		+	-	120			767		5.	-				-	_
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Sample Relinquished By (print name)			Date/Time	Samples Receive	d By	(pfi	nt na	ame	/	1			Dai	ce/Tir			py - Cl		Pa	age	0		of		
Sample Relinguished By (sign)	/		Date/Time	Samples Recei√e	d By	(sig	n)						Dat	e/Tir	Y	ellow C	сору - А ору - А	GAT GAT	NO:						





Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com 22 × 934525

CHAIN OF CUSTODY

Report to: Company: CBCL Same as COC#:					d / Preserve	Water Analysis +				A					12 1.254		12.2		10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -					(N/N)	Lab
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Filtered /	Standard Wat	TKN	TP	SRP	Chlorophyll	TSS	E.Coli	Enterococci				日本街					Other:	Other:	Hazardous (Y/N)	Sample #
Unmarked Outfall 3												1		12	1		-				19				
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Unmarked Outfall 5	\checkmark				1	N ²		-5		123					1.00		1.3								
FLW 3-1 Before					-	_			_																
FLW-3 2 Before										6				24							1		1		
FLW - 3 - 3 Before			_									11											5.10		
FLW - 3 - 4 Before										0.1		1			1.15	-								-	
FLW 3-5 Before					-					1						-	15		1		100	-	1	\rightarrow	
FLW - 7 - 1	9 am		· · · · · · · · · · · · · · · · · · ·					60		1						-						_	IJ	-	
FLW - 7 - 2	1			•			_	1						31								-			
FLW - 7 - 3						23		1						- 5					2		1			-	
FLW - 7 - 4							-	1						-	0000						5			-	
FLW - 7 - 5	4				1		_							3.1	100				-21				-		
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FLW - 8 - 5	¥												-		1					-	-	-		-	
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Sample Relinquished By (print name	e)		Date/Time	Samples Receive	By	(prir	nt ne	ime)	2	1			Date	e/Time				-				- 1			_
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Unit 122 - 11 Morris Dr. Dartmouth, Nova Scotia B3B 1M2 http://webearth.agatlabs.com

22,934525

CHAIN OF CUSTODY

Report to: Company: <u>CBCL</u> Same as COC# ;			-		Field Filtered / Preserve	Standard Water Analysis +				hyll A			occi						ALC: NO.		10 10 Miles		av 12 %	Hazardous (Y/N)	Lab Sample #
SAMPLE IDENTIFICATION	DATE / TIME SAMPLED	SAMPLE MATRIX	# OF CONTAINERS	COMMENTS - Site/Sample Info/Contaminant	Field Fi	Standard	TKN	4	SRP	Chlorophyll	TSS	E.Coli	Enterococci							1	r k	Other:	Other:	lazard	
Outlet of First Lake 3	1			They containing the	-	0,	F		0,	<u> </u>	<u> </u>	1		1		-			1			0	0	-	
Outlet of First Lake 4					1					10-3		+					129				8		1000		
Outlet of First Lake 5	V											1			Sur				1	-					
FLS - 4 - 1	10:15am				1	10						T		12	101				23		1.1				
FLS - 4 - 2						12		$\leq $		1.3				140		1			1	1					
FLS - 4 - 3								16.1									1.0				Yiu		E.	_	
FLS - 4 - 4						12,11						T		112											
FLS - 4 - 5								276												-			Harry Contract		
FLW-3-1 After	9:45ch							11P											E.						
FLW-3-2 After						135									13				3				185		
FLW-3-3 After						ings:											100								
PLW-3-4 After						64											1								
FLW-3-5 After	V							38																	
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Sample Relinquished By (print name	e)		Date/Time	Samples Receiv	ed By	(pri	nt na	ame)	/				Dat	e/Time	Di	nk Cop	by - Cli	ent	Pa	age_	Ň		of		
Sample Relingulished By (sign)			Date/Time	Samples Receiv	ed By	(sig	n)						Date	e/Time	Yell	low Co	ру - А ру - А	GAT GAT	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

		Date	Date		
Analyses	Quantity	Extracted	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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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			
annulina Data		2022/09/27		2022/09/27	7	2022/09/27	7	2022/09/2	7		
ampling Date		07:30		07:30		07:30		07:30			
OC Number		N/A		N/A		N/A		N/A			
		DEEP STATION	0	DEEP STATIO	N	DEEP STATIO	N	DEEP STATIC	DN		
	UNITS	FIRST LAKE (DEEP	P) FIR	ST LAKE (DE	EP)	FIRST LAKE (DI	EP)	FIRST LAKE (D	EEP)	RDL	QC Bat
		1		2		3		4			
Aicrobiological											
scherichia coli	CFU/100mL	170		150		180		170		2.0	825037
RDL = Reportable Detection	n Limit										
C Batch = Quality Control											
Bureau Veritas ID		TVT63	36			TVT637		TVT638			
Comulius Data		2022/09	9/27		2	2022/09/27	2	022/09/27			
Sampling Date		07:3	0			10:30		10:30			
COC Number		N/A				N/A		N/A			
		DEEP STA	TION		D	EEP STATION	DE	EP STATION			
	UNI	TS FIRST LAKE	(DEEP)	QC Batch	ROC	KY LAKE (DEEP)	ROCI	(Y LAKE (DEEP)	RDL	QC Ba	tch
		5				1		2			
Microbiological											
Microbiological Escherichia coli	CFU/10	00mL 150)	8250374		18		8.0	2.0	82515	521

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 Detect QC Batch = Quality Conti						



8250374

6.0

160

2.0 8251521

MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT643	TVT644	TVT645	TVT646			
Semuline Data		2022/09/27	2022/09/27	2022/09/27	2022/09/2	7		
Sampling Date		09:15	09:15	09:15	09:15			
COC Number		N/A	N/A	N/A	N/A			
		DEEP STATION	DEEP STATION	DEEP STATION	DEEP STATIC	DN		
	UNITS	SECOND LAKE (DEEP) 1	SECOND LAKE (DEEP) 2	SECOND LAKE (DEEP) 3	SECOND LAI (DEEP) 4	KE	RDL	QC Bato
Microbiological								
Escherichia coli	CFU/100mL	36	34	38	36		2.0	825037
RDL = Reportable Detecti	on Limit			•	·			
QC Batch = Quality Contro	ol Batch							
Bureau Veritas ID		TVT647	TVT648	TVT649	TVT650			
Comulius Data		2022/09/27	2022/09/27	2022/09/27	2022/09/2	7		
Sampling Date		09:15	07:30	07:30	07:30			
COC Number		N/A	N/A	N/A	N/A			
		DEEP STATION	DEEP STATION	DEEP STATION	DEEP STATIC	DN		
	UNITS	SECOND LAKE	FIRST LAKE	FIRST LAKE	FIRST LAKE	E	RDL	QC Batc
		(DEEP) 5	(SHALLOW) 1	(SHALLOW) 2	(SHALLOW)	3		
Microbiological								
								005007
Escherichia coli	CFU/100mL	62	160	180	140		2.0	8250374
Escherichia coli RDL = Reportable Detecti		62	160	180	140		2.0	8250374
	on Limit	62	160	180	140		2.0	8250374
RDL = Reportable Detecti	on Limit	62 TVT651	160 TVT652	180	140 TVT653		2.0	8250374
RDL = Reportable Detecti QC Batch = Quality Contro Bureau Veritas ID	on Limit		TVT652				2.0	825037
RDL = Reportable Detecti QC Batch = Quality Contro	on Limit	TVT651	TVT652		TVT653		2.0	8250374
RDL = Reportable Detecti QC Batch = Quality Contro Bureau Veritas ID	on Limit	TVT651 2022/09/2	TVT652 7 2022/09/2		TVT653 2022/09/27		2.0	825037
RDL = Reportable Detecti QC Batch = Quality Contro Bureau Veritas ID Sampling Date	on Limit	TVT651 2022/09/2 07:30	TVT652 7 2022/09/2 07:30 N/A	7	TVT653 2022/09/27 10:45		2.0	825037
RDL = Reportable Detecti QC Batch = Quality Contro Bureau Veritas ID Sampling Date	on Limit	TVT651 2022/09/2 07:30 N/A DEEP STATIC	TVT652 7 2022/09/2 07:30 N/A DN DEEP STATIC FIRST LAKE	7 7 IN QC Batch	TVT653 2022/09/27 10:45 N/A	RDL	2.0	

190

Escherichia coli CFU/100mL

RDL = Reportable Detection Limit



MICROBIOLOGY (WATER)

ureau Veritas ID		TVT654		TVT655	TVT656	TVT657		
ampling Data		2022/09/27	20	22/09/27	2022/09/27	2022/09/27		
ampling Date		10:45		10:45	10:45	10:45		
OC Number		N/A		N/A	N/A	N/A		
		DEEP STATION	DEE	P STATION	DEEP STATION	DEEP STATION		
	UNITS	ROCKY LAKE	-	CKY LAKE	ROCKY LAKE	ROCKY LAKE	F	DL QC Ba
		(SHALLOW) 2	(SH	ALLOW) 3	(SHALLOW) 4	(SHALLOW) 5		
Aicrobiological								
scherichia coli	CFU/100mL	14		24	30	14	2	2.0 82515
DL = Reportable Detection	on Limit					·		
C Batch = Quality Contro	ol Batch							
	_						1	1
ureau Veritas ID		TVT658		TVT659	TVT660	TVT661		
ampling Date		2022/09/27	20	22/09/27	2022/09/27	2022/09/27		
		08:50		08:50	08:50	08:50		
OC Number		N/A		N/A	N/A	N/A		
		DEEP STATION		P STATION	DEEP STATION	DEEP STATION		
	UNITS	SECOND LAKE			SECOND LAKE	SECOND LAKE	R	DL QC Ba
		(SHALLOW) 1	(58	ALLOW) 2	(SHALLOW) 3	(SHALLOW) 4		
Aicrobiological								
scherichia coli	CFU/100mL	32		28	40	22	Ĩ	2.0 82503
DL = Reportable Detection	on Limit							
C Batch = Quality Contro	ol Batch							
Bureau Veritas ID		TVT662			TVT663	TVT664	1	
Duleau ventas ib		2022/09/27			2022/09/27	2022/09/27		
Sampling Date		08:50			13:20	13:20		
COC Number		N/A			N/A	N/A		
		DEEP STATION			N/A	11/7		
		SECOND LAKE	RDI	QC Batch	GULLY ON	GULLY ON	RDI	QC Batch
	UNITS			QC Daten	CAVALIER DRIVE 1	CAVALIER DRIVE 2		QC Daten
	UNITS	(SHALLOW) 5			••••••			
Microbiological	UNITS							
Microbiological Escherichia coli	CFU/100m	(SHALLOW) 5	2.0	8250374	3100	2400	100	8251867



MICROBIOLOGY (WATER)

Bureau Veritas ID			TVT665		TVT666		TVT667				
Sampling Date			2022/09/2	7	2022/09/27		2022/09/27				
Sampling Date			13:20		13:20		13:20				
COC Number			N/A		N/A		N/A				
		UNITS	GULLY ON CAVALIER DRI		GULLY ON CAVALIER DRIV	'E 4 C	GULLY ON AVALIER DRIVE 5	RDL	QC	Batch	
Microbiological			•								1
Escherichia coli	CF	U/100mL	3500		3700		3000	100	82	51867	
RDL = Reportable D QC Batch = Quality (
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				
	UN	IITS	INLET OF ROCK LAKE 1	Y	INLET OF ROC LAKE 2	кү	INLET OF ROCKY LAKE 3	1	RDL	QC Ba	atch
Microbiological									•		
Escherichia coli	CFU/1	L00mL	100		150		88		2.0	8251	636
RDL = Reportable Detec QC Batch = Quality Con											
reau Veritas ID			TVT671		TVT672	1	TVT673	3			
npling Date		20	22/09/27 15:20		2022/09/27 15:20		2022/09/ 13:50				
C Number			N/A		N/A		N/A				
	UNITS		T OF ROCKY LAKE 4	IN	LET OF ROCKY LAKE 5	QC Bato	h INLET OF SE LAKE 1)	RDL	QC Ba
icrobiological											
cherichia coli	CFU/100mL		100		140	825163	6 80			2.0	82518
L = Reportable Detection L	imit										



MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT674	TVT675	TVT676		
Sampling Date		2022/09/27	2022/09/27	2022/09/27		
Sampling Date		13:50	13:50	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
	,					

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 Detec	tion Limit						

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 Dete	atta a Linait	•	-	-		



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.



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/100m	L
8251521	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L
8251636	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L
8251867	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L
Method I	Blank: A	blank matrix contai	ning all reagents used in the analytical pro	cedure. Used to identify laboratory	contaminatior	l.		



VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Royn 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.



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

		Date	Date		
Analyses	Quantity	/ Extracted	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:

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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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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MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT846	TVT847	TVT848	TVT849	TVT850	TVT851		
Sampling Date		2022/09/27	2022/09/27	2022/09/27	2022/09/27	2022/09/27	2022/09/27		
Samping Date		08:25	08:25	08:25	08:25	08:25	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 L	imit								
QC Batch = Quality Control Ba	atch								

Bureau Veritas ID		TVT852	TVT853	TVT854	TVT855		TVT856	TVT857		
Sampling Date		2022/09/27	2022/09/27	2022/09/27	2022/09/27		2022/09/27	2022/09/27		
Sampling Date		08:15	08:15	08:15	08:15		07:55	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	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	UNITS CFU/100mL		FLW-2-3	FLW-2-4 2200	FLW-2-5 1900	QC Batch 8250374	FLW-6-1 3000	FLW-6-2 1600	1	QC Batch 8250446

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 Batc
Microbiological				·		·		·		<u>.</u>
Escherichia coli	CFU/100mL	2600	2400	2900	100	190	200	160	2.0	8250446
RDL = Reportable Detec	tion Limit			•		•		•		

Bureau Veritas ID		TVT865	TVT866		TVT867	TVT868	TVT869	TVT870		
Sampling Date		2022/09/27	2022/09/27		2022/09/27	2022/09/27	2022/09/27	2022/09/27		
		08:45	08:45		09:23	09:23	09:23	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 Detect	tion Limit									
QC Batch = Quality Cont	rol Batch									



MICROBIOLOGY (WATER)

Bureau Veritas ID		TVT871	TVT872	TVT873	TVT874	TVT875	TVT876		
Sampling Data		2022/09/27	2022/09/27	2022/09/27	2022/09/27	2022/09/27	2022/09/27		
Sampling Date		09:23	09:02	09:02	09:02	09:02	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 L	imit								
QC Batch = Quality Control Ba	atch								



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.



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/100m	L		
8250446	RED	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100m	L		
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.										



VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Royn Edwards

Robyn Edwards, Bedford Micro Supervisor

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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

Sample Matrix: Water # Samples Received: 50

		Date	Date		
Analyses	Quantity	y Extracted	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:

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.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

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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

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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MICROBIOLOGY (WATER)

ıreau Veritas ID		TVU352	TVU	353	TVU354	TV	U355	TVU3	56		τνι	J357		
mpling Date		2022/09/2			022/09/2		/09/27	2022/09	-			/09/27	7	
		10:45	10:		10:45		0:45	10:4			-):15		
OC Number		N/A	N/	A	N/A	Ν	I/A	N/A			N	I/A		
	UNITS	FLN-1-1	FLN-	1-2	FLN-1-3	FLI	N-1-4	FLN-1	-5	QC Batch	n FLN	-2-1	RD	L QC Ba
icrobiological														
cherichia coli	CFU/100mL	1000	100	00	700	7	700	1400)	8251521	>25	5000	100	82506
DL = Reportable Detection L C Batch = Quality Control Ba														
Bureau Veritas ID		TVU3	58 T\	VU359	TVU3	60	TVU36	1	T١	VU362	TVU3	363		
Sampling Date		2022/09	-	2/09/27 10:15	2022/0		022/09, 10:15			2/09/27 10:20	2022/0 10:1	-		
COC Number		N/A		N/A	N/A		N/A	,	-	N/A	N//	-		
	UNITS	FLN-2		LN-2-3	FLN-2		FLN-2-	5 RDL		LN-3-1	FLN-:		RDL	QC Bato
Microbiological														
Escherichia coli	CFU/100ml	>2500	00 >	25000	>250	00	>2500	0 100		46	62	,	2.0	825063
RDL = Reportable Detection	,				- 200		. 2000						2.0	010000
QC Batch = Quality Control														
Bureau Veritas ID			VU364	TVU3		VU366				TVU367				
Sampling Date		20	22/09/27 10:20	2022/0 10:2	-	22/09/2 10:20	7		20)22/09/2 11:30	7			
COC Number			N/A	N/A		N/A				N/A				
			,,,,	,,			00.0	U	NMA	RKED OU	TFALL	RDI		atch
	UN	ITS	LN-3-3	FLN-3	3-4 F	LN-3-5	QC B	atch		1			QC Ba	
Microbiological	UN	IITS I	ELN-3-3	FLN-3	3-4 F	LN-3-5	QC B	atch		1			QC Ba	
	UN CFU/:		-LN-3-3 36	FLN-3		LN-3-5	QС В 8250			1 24			QC В а 8251	
Microbiological	CFU/:													
Microbiological Escherichia coli	CFU/2 ection Limit													
Microbiological Escherichia coli RDL = Reportable Dete	CFU/2 ection Limit			58			8250							
Microbiological Escherichia coli RDL = Reportable Dete QC Batch = Quality Co	CFU/2 ection Limit		36 TVU: 2022/0	58 368 09/27		62 TVU 2022/	8250 869 09/27			24 TVU370 D22/09/2	7			
Microbiological Escherichia coli RDL = Reportable Detr QC Batch = Quality Co Bureau Veritas ID	CFU/2 ection Limit		36 TVU 2022/0 11:	58 368 09/27 30		62 TVU 2022/ 11	8250 869 09/27 :30			24 TVU370 D22/09/2 11:30	7			
Microbiological Escherichia coli RDL = Reportable Dete QC Batch = Quality Co Bureau Veritas ID Sampling Date	CFU/2 ection Limit	L00mL	36 TVU: 2022/0 11: N/	368 39/27 30 A OUTFA		62 TVU 2022/ 11 N, MARKE	8250 8250 1369 09/27 :30 /A D OUTF	637	20	24 TVU370 D22/09/2 11:30 N/A RKED OU		2.0		521
Microbiological Escherichia coli RDL = Reportable Dete QC Batch = Quality Co Bureau Veritas ID Sampling Date	CFU/: ection Limit ontrol Batch	L00mL	36 TVU: 2022/0 11: N/	368 39/27 30 A OUTFA		62 TVU 2022/ 11 N, MARKE	8250 369 09/27 :30 /A	637	20	24 TVU370 D22/09/2 11:30 N/A		2.0	8251	521
Microbiological Escherichia coli RDL = Reportable Dete QC Batch = Quality Co Bureau Veritas ID Sampling Date COC Number	CFU/: ection Limit ontrol Batch	LOOmL	36 TVU: 2022/0 11: N/	58 368 09/27 30 A D OUTFA		62 TVU 2022/ 11 N, MARKE	8250 8250 1369 09/27 :30 /A D OUTF	637	20	24 TVU370 D22/09/2 11:30 N/A RKED OU		2.0	8251	521



100 8251636

MICROBIOLOGY (WATER)

Number		N/A	N/A	N/A	-		/A		.05 /A	N/		N//			
pling Date		2022/09/27 12:30	2022/09/27 12:30	2022/09 12:0			/09/27 2:05	2022/ 12	09/27 :05	2022/0		2022/0			
au Veritas ID		TVU375	TVU376	TVU3	77	TVL	J378	TVU	379	TVU	380	TVU3	881		
RDL = Reportable Detec QC Batch = Quality Cont															
Escherichia coli	CFU/10	0mL	10	2.0	825	1521	>250	000	>25	000	>25	5000	100	8251	L636
Microbiological															
	UNI	rs UNMA	ARKED OUTFA	RDL	QCI	Batch	FLW	-3-1	FLW	-3-2	FLW	/-3-3	RDL	QC B	atch
COC Number			N/A				N/	Ά	N/A	/A	N,	/A			
Sampling Date		2	022/09/27 11:30				2022/0 12:			'09/27 :30		/09/27 2:30			
Bureau Veritas ID			TVU371				TVU	372	TVL	1373	TVL	J374			

Microbiological

Escherichia coli

RDL = Reportable Detection Limit

CFU/100mL

>25000

>25000

QC Batch = Quality Control Batch

Bureau Veritas ID		TVU382	TVU383	TVU384		TVU385	TVU386			
Sampling Date		2022/09/27	2022/09/27	2022/09/27		2022/09/27	2022/09/27			
build parts		11:45	11:45	11:45		11:45	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										

7200

7700

5200

7700

6900

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 Detect			•			



MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU390	TVU391		TVU392		
Compling Data		2022/09/27	2022/09/27		2022/09/27		
Sampling Date		09:50	09:50		10:35		
COC Number		N/A	N/A		N/A		
	UNITS	OUTLET OF FIRST	OUTLET OF FIRST	QC Batch	INLET OF FIRST		QC Batch
	UNITS	LAKE 4	LAKE 5	QC Batch	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 Detec	tion 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	on 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 QC Batch = Quality Control							



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.



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/100m	L	
8250446	RED	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100m	L	
8250615	MAA	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100m	L	
8250637	JWA	Method Blank	Escherichia coli	2022/09/27	<1.0		CFU/100m	L	
8251521	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L	
8251636	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L	
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.									



VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Royn 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.



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 #: R7330295 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9496 Received: 2022/09/27, 16:09

Sample Matrix: Water # Samples Received: 25

		Date	Date		
Analyses	Quantity	y Extracted	Analyzed	Laboratory Method	Analytical Method
E.coli in water (CFU/100mL)	25	N/A	2022/09/28	3 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.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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 #: R7330295 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2R9496 Received: 2022/09/27, 16:09

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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MICROBIOLOGY (WATER)

Microbiological Escherichia coli	CFU/100mL	11000	11000	11000	10000	100 825	1521	>500	2.0	8251867
	UNITS	FLN-8-2	FLN-8-3	FLN-8-4	FLN-8-5	RDL QC	atch	FLE-2-1	RDL	QC Batch
COC Number		N/A	N/A	N/A	N/A			N/A		
Sampling Date		11:50	11:50	11:50	11:50			13:20		
		2022/09/27				,		2022/09/27		
Bureau Veritas ID		TVU647	TVU648	TVU649	TVU650		i	TVU651		
RDL = Reportable Detection Li QC Batch = Quality Control Ba										
scherichia coli	CFU/100mL	360	370	350	370	340	10	10000	100	825152
Aicrobiological										
	UNITS	FLN-4-1	FLN-4-2	FLN-4-3	FLN-4-4	FLN-4-5	RDI	FLN-8-1	RDL	QC Bate
COC Number		N/A	N/A	N/A	N/A	N/A		N/A		
ampling Date		11:30	11:30	11:30	11:30	11:30		11:50		
		2022/09/27	2022/09/27	2022/09/27	2022/09/27	2022/09/2	7	2022/09/27		
Bureau Veritas ID		TVU641	TVU642	TVU643	TVU644	TVU645	7	TVU646		

Bureau Veritas ID		TVU652	TVU653	TVU654	TVU655		TVU656	TVU657		
Sampling Date		2022/09/27	2022/09/27	2022/09/27	2022/09/27		2022/09/27	2022/09/27		
		13:20	13:20	13:20	13:20		13:40	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	Microbiological									
Escherichia coli	CFU/100mL	>500	>500	>500	>500	2.0	>2500	>2500	10	8251867
RDL = Reportable Detection										

RDL = Reportable Detection Limit QC Batch = Quality Control Batch

Bureau Veritas ID TVU658 TVU659 TVU660 TVU661 TVU662 TVU663 2022/09/27 2022/09/27 2022/09/27 2022/09/27 2022/09/27 2022/09/27 Sampling Date 13:40 13:40 13:40 14:30 14:30 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 2.0 8251867 >500 RDL = Reportable Detection Limit QC Batch = Quality Control Batch



MICROBIOLOGY (WATER)

Bureau Veritas ID		TVU664	TVU665					
formaling Data		2022/09/27	2022/09/27					
Sampling Date		14:30	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 Ba	itch							



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.



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/100m	L
8251867	MAA	Method Blank	Escherichia coli	2022/09/28	<1.0		CFU/100m	L
Method I	Blank: A	blank matrix conta	aining all reagents used in the analytical pro	ocedure. Used to identify laboratory c	ontaminatio	n.		



VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Royn Edwards

Robyn Edwards, Bedford Micro Supervisor

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APPENDIX D

Project Memos



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.

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 \leq 200 CFU/100mL, and a maximum single sample of \leq 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:

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.

Location	ID	<i>E. coli</i> Results					
	Friends of		CBCL		Friends of First Lake		
CBCL	First Lake	Date	(CFU/100 mL)	Date	(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		

Table 2. First Lake *E. coli* results for 2021 and 2022

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.

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

Mihal Buly.

Michael Brophy, M.A.Sc. Process Specialist E-Mail: mbrophy@cbcl.ca

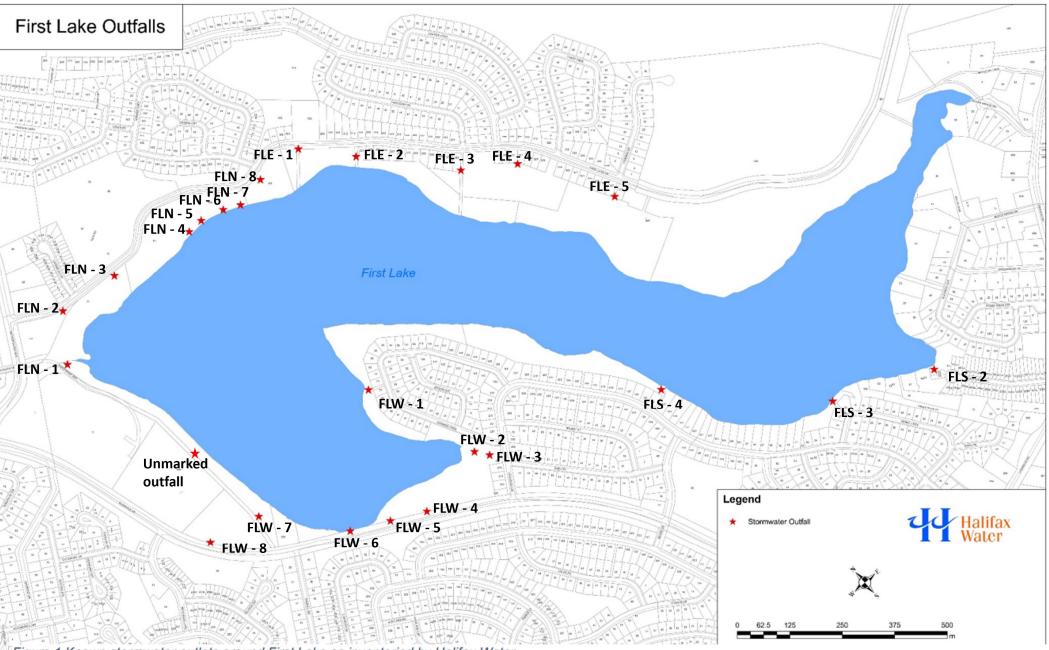


Figure 1 Known stormwater outlets around First Lake as inventoried by Halifax Water

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 \leq 200 CFU/100mL, and a maximum single sample of \leq 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	<i>E. coli</i> Results					
CDCI	June 15, 20	22 (Wet)	July 14, 2022 (Dry)			
CBCL	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.

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

Militad Buly.

Michael Brophy, M.A.Sc. Process Specialist E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water



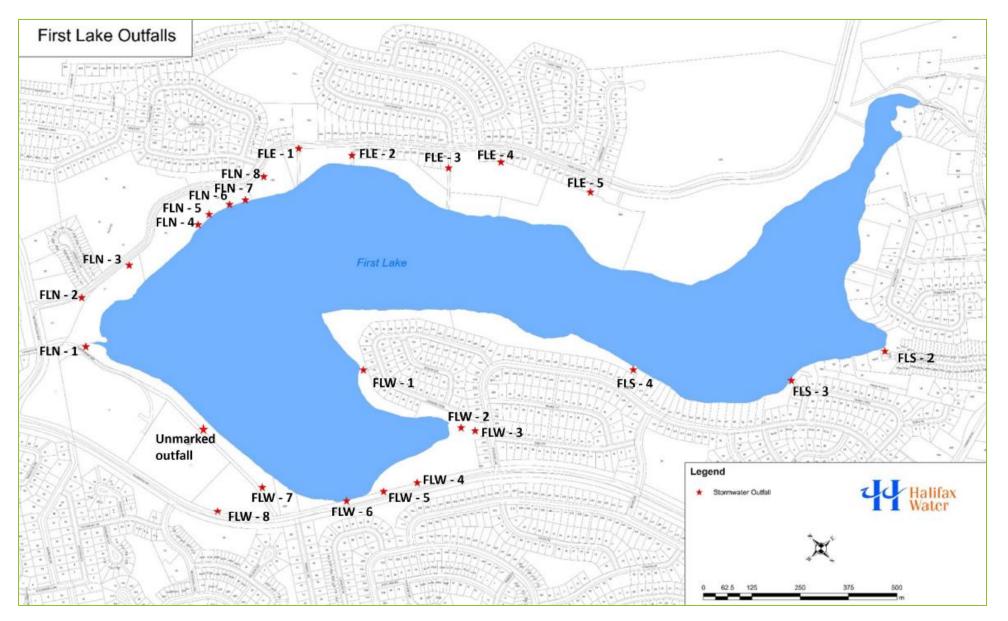


Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water



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.

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.

свс Progress Report

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 \leq 200 CFU/100mL, and a maximum single sample of \leq 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.

able 1: First Lake		E. coli R													
CBCL	June 15, 2022 (Wet)	July 14, 2022 (Dry)	August 10, 2022 (Dry)		August 18, 2022										
	(CFU/100 mL)	(CFU/100 mL)	(CFU/1	00 mL)	(CFU/100 mL)										
FLW-1	> 200	> 20000	140414		140414		140414		140414		140414		140414		26877
FLW-2	> 200	> 20000	25338		9218										
FLW-3	> 200	5377	Above Barrier Below	2388	>20000										
			Barrier	5334											
FLW-6	> 200	1243	40	64	7804										
FLW-7	> 200	107	44	46	2631										
FLW-8	> 200	> 20000	30	05	3498										
Kinsmen Beach A	135	84	29	292 10											
Kinsmen Beach B	92	60	2	56	90										
Kinsmen Beach C	63	60	2	76	86										
Kinsmen Beach D	180	90	>4	00	178										
Kinsmen Beach E	199	110		08	106										
FLN-1	> 200	816		46	2547										
FLN-2	> 200	14560	11	03	5390										
FLN-3	34	3	2	70	295										
FLN-4	-	-		-	862										
FLN-5	> 200	-		-	-										
FLN-8	> 200	9691	13	38	515										
FLS-3	> 200	13064	48	73	265										
FLS-4	> 200	> 20000	38	719	39985										
FLE-3	134	14	1	9	>200										
FLE-5	192	140	>4	00	257										
Inlet First Lake	> 200	328	10	67	>400										
Outlet First Lake	28	13	(6	183										
Cavalier Gully	248	25	9	6	2195										

T. I.I. A. E. - 1* ~~~~

свсL Progress Report

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.

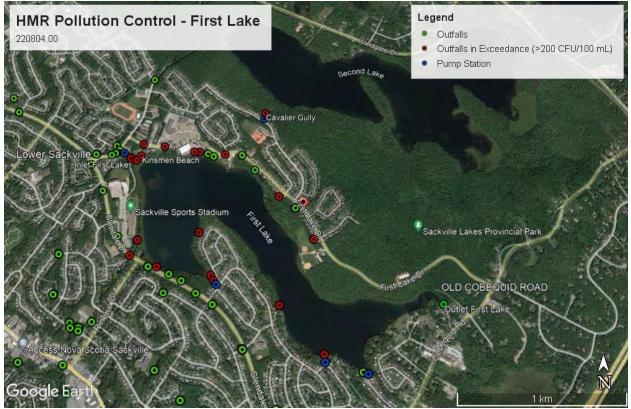


Figure 1: Outfalls and pump stations with *E. coli* exceedances around First Lake.

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

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Michael Brophy, M.A.Sc. Process Specialist E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water



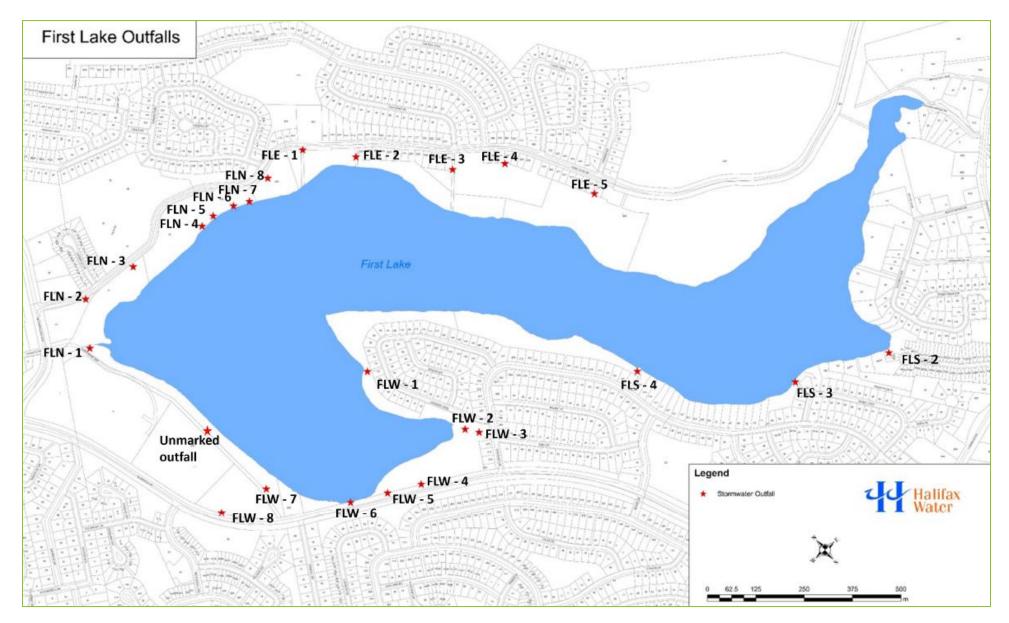


Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water



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.

свс Progress Report

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 \leq 200 CFU/100mL, and a maximum single sample of \leq 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.

Table 1: First Lake <i>E. coli</i> results for the entire sampling program
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Location ID	<i>E. coli</i> 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 Below Barrier	2388 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.

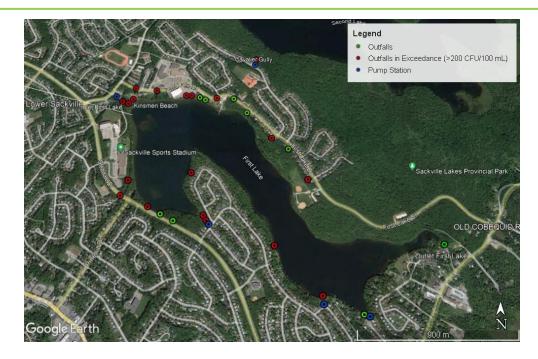


Figure 1: Outfalls and pump stations with *E. coli* exceedances around First Lake.

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.

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

Militad Buly.

Michael Brophy, M.A.Sc. Process Specialist E-Mail: mbrophy@cbcl.ca

APPENDIX A

Outfall Map Supplied by Halifax Water



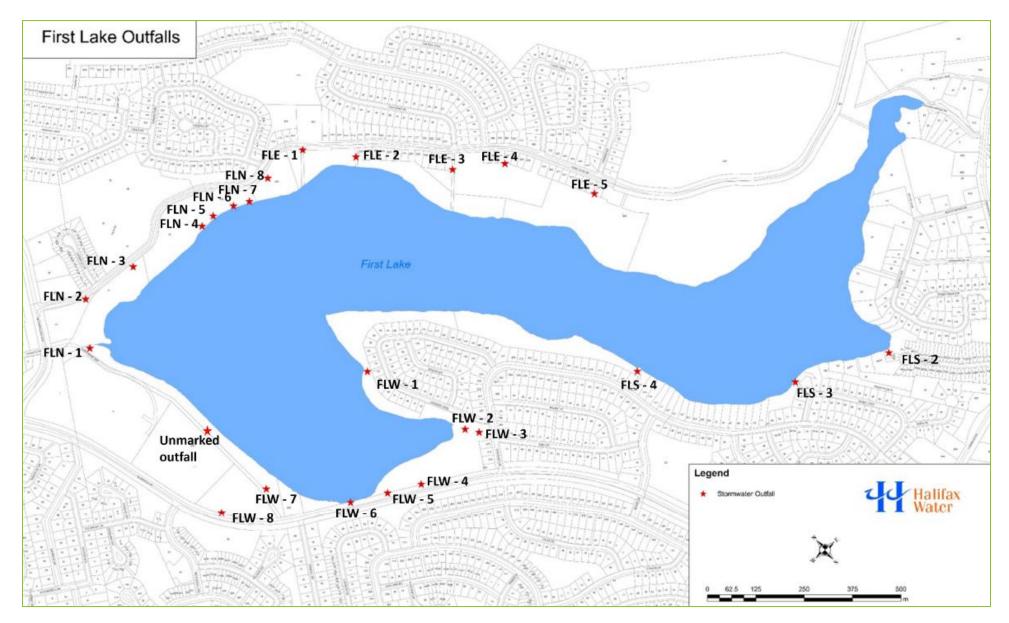


Figure 1: Known Stormwater Outlets around First Lake as Inventoried by Halifax Water



Table 1: *E. coli* and MST Data for September 27, 2022

	September 27, 2022							
Sample Name	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.



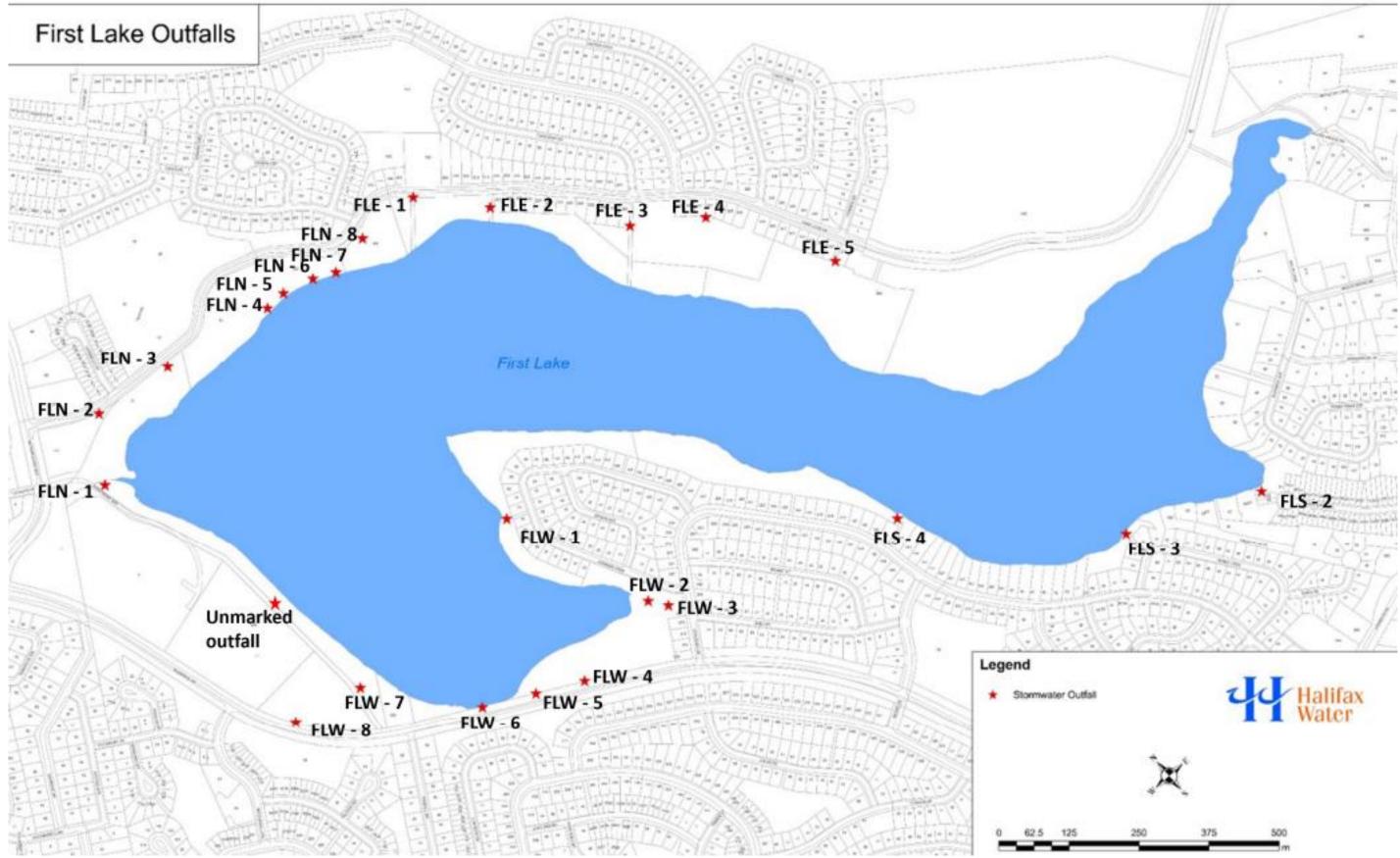


Figure 1: Map of First Lake

CBCL

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