

September 21, 2012

**Halifax Regional Municipality
Energy and Environment**

PO Box 1749
Halifax, Nova Scotia
B3J 3A5

Attention: Mr. Cameron Deacoff

Dear Mr. Deacoff:

**RE: Final Report: Water Quality Monitoring within Bedford West, Bedford,
Nova Scotia – August 2012 Sampling Event**

1. INTRODUCTION

SNC-Lavalin Inc., Environment Division (SLE) was retained by the Halifax Regional Municipality (HRM) to conduct water quality monitoring within Bedford West. The Paper Mill Lake watershed is the primary watershed within the area. The water sampling program consisted of collecting surface water samples from eleven (11) specified locations as part of the August 2012 sampling event. The purpose of the program is to determine water quality for watersheds impacted by the development in the Bedford West area. The overall purpose of the monitoring program is to conduct water quality testing prior to construction activities (establish baseline conditions) in order to detect any impacts on and/or changes to water quality during and after construction of the development project.

This report presents water quality data from Kearney Lake, Kearney Lake Run, Highway 102, Lakeshore Drive, Larry Uteck Boulevard and Paper Mill Lake, collected on August 14 and August 15, 2012. The water quality test locations are presented on Figure 1.



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2. METHODOLOGY

The August 2012 monitoring event methodology consisted of the sampling and analyses of general chemistry (RCap), total metals, total phosphorous, total suspended solids, E. coli bacteria, TKN and chlorophyll-a from eleven (11) specified surface water sampling locations. Standard field measurements (pH, water temperature, dissolved oxygen, conductivity, secchi depth, air temperature, cloud cover, and wildlife sightings) were to be measured at eleven (11) specified sampling locations for the August 2012 monitoring event. The field measurements were collected using an AM100 Aqua Meter and AP800 Aqua Probe. For 2009 SLE sampling events, Oakton Portable Waterproof Meters were used for collecting field measurements (Dissolved Oxygen Meter – 35601-Series; pH and Conductivity – 35630-00 and 35630-02, respectively), and for 2010-2011 SLE sampling events, Hach intelliCAL probes for pH, conductivity and dissolved oxygen (Product Numbers pHC30101, CDC40101 and LDO10101, respectively) were used. The samples and field parameter readings were collected from a 1.0 metre depth whenever possible.

The field parameters and site conditions for each sampling location were recorded on a field report. The field reports are provided in Attachment 1. Photographs of each sampling location are attached in Attachment 2.

A new pair of latex gloves was used at each sample location. Surface water samples were collected and placed in clean laboratory-supplied jars and stored in a chilled container together with a chain of custody record for transport to the laboratory. All surface water samples collected were submitted to AGAT Laboratories, located in Dartmouth, Nova Scotia.

Secchi depth measurements were taken from the shady side of the boat at two sample locations. The secchi disk was lowered in the water until no longer visible. The depth was measured to the nearest tenth of a metre. The disk was raised until visible in the water and the depth was measured. The secchi depth is the midpoint between the two measured depths.



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3. ASSESSMENT STANDARDS

The Canadian Council of Ministers of the Environment (CCME) guidelines for water are broken down based on water use including Freshwater Aquatic Life, Marine Water Aquatic Life, Irrigation, Livestock Watering and Aesthetics and Drinking Water. The surface water quality results were compared to the CCME Freshwater Aquatic Life (FWAL) guidelines since the specified sampling locations are located at and/or near adjacent freshwater bodies.

Analytical data for total suspended solids (TSS) and turbidity are compared to the CCME for the Protection of Aquatic Life (CCME Narrative Total Particulate Matter – Table 1 Suspended Sediments and Turbidity, High Flow Conditions, 1999, updated 2002).

For TSS, the guideline value is equal to a maximum increase of 25 mg/L from background levels at any time when background levels are between 25 and 250 mg/L. Or the concentration should not increase more than 10% of background levels when background is greater than 250 mg/L.

The Health Canada guidelines for Canadian Recreational Water Quality (revised in 2009 as a Draft Report) were used as reference guidelines. The Canadian Recreational Water Quality guidelines indicate that the clarity of the water should be sufficiently clear that a Secchi disk is visible at a minimum of 1.2 metres. For Turbidity a limit of 50 Nephelometric Turbidity Units (NTU) is suggested.

4. RESULTS OF THE INVESTIGATION

The two (2) surface water sample locations associated with Paper Mill Lake were not collected as part of the August 2012 sampling program since recent draining of the lake made access unsafe. Photographs of the area are provided in Attachment 2 (Photo 9 and Photo 10).



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4.1. FIELD MEASUREMENTS

Field parameters were measured at nine (9) of the eleven (11) sampling locations during the August 2012 monitoring event. Field measurements of dissolved oxygen, pH, conductivity and temperature are presented in Table 1. Dissolved oxygen readings of 1.03 mg/L, 13.1 mg/L and 2.69 mg/L were recorded at sample locations HWY102-1, HWY102-2 and LSD, respectively, which are outside the CCME FWAL guideline range of 5.5-9.5 mg/L. All other dissolved oxygen readings for the remaining three sample locations were within the applied CCME FWAL guideline range.

4.2. LABORATORY ANALYTICAL RESULTS

4.2.1. GENERAL CHEMISTRY

The analytical results reported pH levels within the acceptable range of 6.5-9.0 for all sample locations. During previous sampling rounds, it has not been uncommon to encounter pH levels slightly below the acceptable CCME FWAL range.

Turbidity concentrations at all sample locations were reported to be within the referenced CCME Recreational Water Quality guideline of 50 NTU with the exception of sample location LSD, which reported a turbidity concentration of 283 NTU.

4.2.2. METALS

Analytical results reported total aluminum concentrations of above the CCME FWAL guideline of 5-100 µg/L at KL2, HWY102-1, HWY102-2, LSD, and LU (total aluminum: 205 µg/L, 183 µg/L, 466 µg/L, 19,200 µg/L, and 227 µg/L, respectively).

At sample location LSD, total arsenic was found to exceed the CCME FWAL guideline of 5 µg/L (8 µg/L). This is the first instance of a total arsenic exceedance since the monitoring program began in 2009.

The analytical results reported total cadmium concentrations of above the CCME FWAL guideline of 0.017 µg/L at KL1, KL3, KL5, HWY102-1, HWY102-2, LSD, and LU (total cadmium: 0.027 µg/L, 0.021 µg/L, 0.027 µg/L, 0.021 µg/L, 0.031 µg/L, 1.050 µg/L, and 0.171 µg/L, respectively).



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At sample location LSD, total chromium was found to exceed the CCME FWAL guideline of 1 µg/L (11 µg/L). This is the first instance of a total chromium exceedance since the monitoring program began in 2009.

At sample location LSD, total copper was found to exceed the CCME FWAL guideline of 2.0-4.0 µg/L (22 µg/L). An exceedance of total copper has only been encountered once before since the monitoring program began in 2009, in May 2010 at sample location KL1.

Total iron exceeded the CCME FWAL guideline of 300 µg/L at sample locations KL2, 102-1, 102-2, LSD, and LU (541 µg/L, 1380 µg/L, 5210 µg/L, 38900 µg/L, 1320 µg/L, respectively). Although total iron has exceeded the guideline during previous sampling rounds, exceedances were significantly higher prior to the August 2012 sampling event.

At sample location LSD, total lead was found to exceed the CCME FWAL of 1.0-7.0 µg/L (82.4 µg/L). An exceedance of total lead has only been encountered once before since the monitoring program began in 2009, in May 2010 at sample location KL1.

At sample location LSD, total selenium was found to exceed the CCME FWAL guideline of 1 µg/L (2 µg/L). This is the first instance of a total selenium exceedance since the monitoring program began in 2009.

Total zinc exceeded the CCME FWAL guideline of 30 µg/L at two sample locations, LSD and LU (110 µg/L and 92 µg/L, respectively). An exceedance of total zinc has only been encountered once before since the monitoring program began in 2009, in May 2012 at sample location LU.

All other metals parameters were reported to be within the applied CCME FWAL guidelines. Surface water metals results have been provided in Table 1. Laboratory certificates have been provided in Attachment 3.

4.2.3. MICROBIOLOGICAL

The laboratory analytical results reported E. Coli concentrations were reported to be within the referenced Health Canada Recreational Water Quality guidelines of 400 MPN/100 mL for all sample locations.



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Surface water microbiological results have been provided in Table 1. Laboratory certificates have been provided in Attachment 3.

5. CONCLUSIONS

Water quality monitoring within Bedford West was conducted on August 14 and 15, 2012, and included the collection of field parameters (pH, water temperature, dissolved oxygen, conductivity, secchi depth, air temperature, cloud cover, and wildlife sightings) and the collection of surface water samples for the analysis of RCAP, total metals, total phosphorous, total suspended solids, E. Coli, total coliforms and chlorophyll-a.

Dissolved oxygen readings outside of the CCME FWAL guideline range were recorded at three (3) sample locations: HWY102-1, HWY102-2 and LSD.

Turbidity was found to exceed the applicable Health Canada guideline of 50 NTU at sample location LSD (283 NTU).

Turbidity concentrations at all sample locations were reported to be within the referenced Health Canada Recreational Water Quality guideline of 50 NTU.

Analytical results reported total aluminum concentrations of above the CCME FWAL guideline at five (5) sample locations: KL2, HWY102-1, HWY102-2, LSD, and LU. The analytical results reported total cadmium concentrations of above the CCME FWAL guideline at seven (7) sample locations: KL1, KL3, KL5, HWY102-1, HWY102-2, LSD, and LU. Total iron exceeded the applicable guideline at five (5) locations: KL2, 102-1, 102-2, LSD, and LU. Analytical results showed that total zinc exceeded the CCME FWAL guideline at two (2) locations: LSD and LU. The sample collected at location LSD also exceeded the applicable guidelines for total arsenic, total chromium, total copper, total lead and total selenium.

The laboratory analytical results reported E. Coli concentrations to be within the referenced Health Canada Recreational Water Quality guidelines of 400 MPN/100 mL for all sample locations.



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If you have any questions or require anything further, please contact the undersigned at (902) 492-4544.

Yours truly,

SNC◆LAVALIN ENVIRONMENT

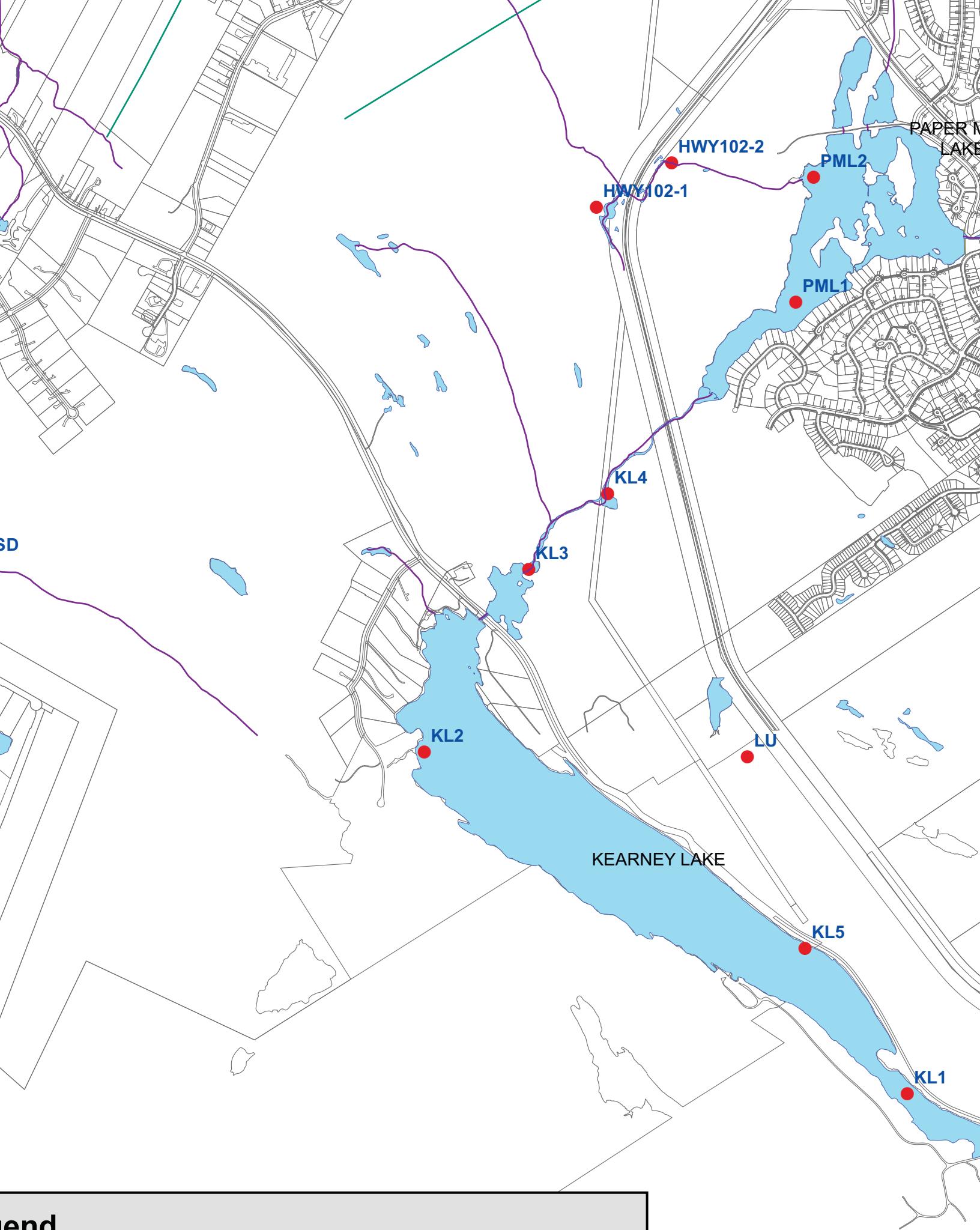
Original Signed

Derek Heath, P.Geo.

Project Manager

DH/ap

510192-0001-T-EN-REP-0002.docx, Revision C01



" -- " = no guideline available / Not Tested.

CCMME FWAL = Canadian Council of Ministers of

Health Canada Guideline for Recreational Water Quality = Health Canada Guidelines for Canadian Recreational Water Quality - Draft (September, 2009)

Bold = Parameter concentration exceeds CCME FWAL Guideline - Previous Result.

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K1.4		K1.3		K1.2		K1.1		K1.0		K0.9		K0.8		K0.7		K0.6		K0.5		K0.4		K0.3		K0.2		K0.1		K0.0	
2009/06/29	2009/08/13	2009/10/01	2010/05/31	2010/08/24	2010/11/01	2011/05/13	2011/08/14	2012/05/01	2012/08/16	2012/05/01	2012/08/14	2009/06/29	2009/08/13	2009/10/01	2010/05/31	2010/08/24	2010/11/01	2011/05/13	2011/08/14	2012/05/01	2012/08/16	2011/05/13	2011/08/14	2012/05/01	2012/08/16	2011/05/13	2011/08/14	2012/05/01	
09:00	11:00	09:30	11:30	14:12	11:40	10:30	12:20	12:00	10:26	12:20	10:00	10:00	11:30	10:00	11:20	13:50	11:15	10:10	10:10	11:40	11:40	11:40	11:40	11:40	11:40	11:40	11:40		
1.2	--	N/A																											
--	--	14.0	21.6	17.3	14.7	23.1	9.9	10.3	21.1	15.5	9	24.5	13.4	21.9	14.5	21.9	14.5	9.8	10.1	21.2	15.3	9.0	15.3	9.0	15.3	N/A	N/A		
--	--	5.59.5	10.79	8.00	9.26	7.83	10.35	11.06	9.60	8.42	9.60	8.89	8.17	10.87	8.10	8.30	9.01	6.27	10.89	10.99	9.55	9.55	8.70	8.70	8.70	8.70	8.70	8.70	
--	--	7.27	6.74	6.97	7.27	7.33	6.76	6.83	6.30	6.30	6.30	6.35	8.00	6.71	6.94	7.19	6.38	6.07	6.49	6.43	6.02	5.90	6.02	5.90	6.02	5.90	5.90		
--	--	95	282	246	220	228	199	220	175	161	204	225	771	262	247	224	226	215	218	172	126	206	206	206	206	206	206		
--	--	<5	7	6	7	6	7	6	7	6	7	6	5	7	7	6	5	7	5	8	7	22	51	48	48	48			
--	--	120	66	63	60	55	53	56	43	37	50	57	67	65	60	56	53	56	53	56	53	38	43	43	43	43			
--	--	22	20	20	28	12	20	31	38	40	57	15	22	18	20	27	11	20	22	32	38	33	43	43	43	43			
--	--	0.14	0.12	0.14	0.24	0.15	0.24	0.22	0.24	0.15	0.19	0.16	0.15	0.12	0.14	0.23	0.19	0.21	0.23	0.15	0.17	0.19	0.19	0.19	0.19	0.19			
--	--	13000	14.14	--	0.24	0.15	--	0.24	--	0.24	--	0.19	0.09	0.15	--	0.19	0.15	--	0.23	--	--	--	--	--	--	--			
--	--	60	<0.01	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
--	--	19	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
--	--	2.61	3.9	4.3	3.1	3.8	5.1	5.0	5.1	5.0	5.0	5.9	3.4	2.6	4.0	3.3	2.6	3.1	3.1	3.7	6	5.4	7.5	7.5	7.5	7.5			
--	--	0.39	6.38	6.67	6.82	6.82	6.82	6.82	6.87	6.87	6.87	6.57	6.7	7.1	6.61	6.75	6.83	6.93	6.57	6.57	6.46	6.7	6.7	6.7	6.7				
--	--	6.7	7.1	6.8	7.1	7.1	7.1	7.1	7.09	7.09	7.09	6.9	6.8	7.7	7.0	6.81	8.00	8.45	8.33	5.24	5.7	5.7	5.7	5.7	5.7				
--	--	1.2	1.11	1.22	1.28	1.22	1.21	1.21	0.83	1.01	1.01	1.0	1.2	1.2	1.2	1.3	1.2	1.2	1.24	1.31	1.19	0.96	0.99	1.0	0.99	1.0			
--	--	<0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
--	--	0.9	1.1	0.9	0.9	0.837	0.980	0.879	0.861	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879	0.879			
--	--	38	35	28.3	33.0	33.0	33.0	33.0	33.0	33.0	33.0	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2	31.2			
--	--	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.9	2.9	2.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			
--	--	<1	1	1	2	<2	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
--	--	11	12	12	10	10	9	10	9	10	10	9	8	11	12	11	10	9	10	9	10	9	10	9	10	9			
--	--	0.7	1.4	0.6	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6			
--	--	250	250	240	220	220	220	220	170	160	197	222	260	260	260	260	260	260	260	260	260	260	260	260	260	260			
--	--	<1	2.11	2.17	2.08	1.90	1.93	1.87	1.90	1.58	1.90	1.58	1.36	2.03	1.90	2.23	2.22	2.09	1.91	1.94	1.88	1.62	1.36	2.04	2.04	2.04			
--	--	<1	7	6	7	6	7	6	7	7	7	6	5	7	7	6	5	7	5	8	7	22	51	48	48	48			
--	--	128	130	123	110	117	116	115	115	88	82	111	113	132	135	111	111	111	111	111	111	111	111	111	111	111			
--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			
--	--	2.12	2.16	1.99	1.69	1.97	1.98	1.92	1.92	1.32	1.32	1.32	1.77	1.98	2.16	2.16	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07	2.07			
--	--	22	23	22	22	22	22	23	23	23	23	23	15	18	18.4	22.2	22.2	22	22	22	22	22	22	22	22	22	22		
--	--	0.24	0.23	0.23	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21			
--	--	NC	-3.00	-2.89	-2.92	-2.73	-2.60	-2.60	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73	-2.73			
--	--	NC	-3.25	-3.14	-3.17	-2.85	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99	-2.99			
--	--	NC	9.67	9.71	9.74	9.59	9.60	9.75	9.63	9.83	9.86	9.99	9.99	10.00	10.10	9.98	9.79	10.3	10.1	9.9	9.9	9.9	9.8	9.8	9.8	9.8			
--	--	0.017	<0.3	<1.60	--	--	1.24	53.5	--	266	--	--	199	54	150	--	--	125	29.2	--	--	--	--	--	--	--	--		
--	--	5-100	<2	<2	<2	<2	<2	<2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				
--	--	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
--	--	16	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
--	--	2.04.0	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
--	--	300	94	94	73	133	58	136	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104			
--	--	1.0-7.0	<0.5	--	--	0.60	<0.50	--	0.50	--	0.50	--	<0.10	--	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			
--	--	0.8	<0.1	--	--	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				
--	--	15	6	--	--	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0				
--	--	30	14	--	--	9.7	6.9	6.4	9.3	6.6	6.6	<5	14	--	--	--	--	--	--	--	--	--	--	--	--	--			
--	--	120	17	--	--	1.21	24	--	1.90	16	.58	72	--	291	1553	28	--	100	16	75	93	95	--	345	4	--			
--	--	400	400	--	--	1.11	1.18	--	1.30	1.14	1.44	1.51	--	8.10	8.30	9.01	--	1.01	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11		
--	--	400	400	--	--	1.04	1.11	--	1.30	1.14	1.44	1.51	--	8.10	8.30	9.01	--	1.01	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11		
--	--	0.94	0.97	--	--	1.21	1.09	--	1.09	1																			

"--" = No guideline available / Not Tested

CCME FWAI = Canadian Council of Ministers of the Environment

CCME FWGL = Canadian Council of Ministers of the Environment Freshwater Aquatic Life Guideline for the protection of environmental and ecological receptors (last updated 2011)

Health Canada Guideline for Recreational Water Quality - Health Canada Guidelines for Chemical Contaminants

HWY102-2																		
2009/06/29		2009/08/13		2009/10/01		2010/05/31		2010/08/24		2010/11/01		2011/05/13		2011/08/14		2012-05-01		
07:00	12:45	08:00	13:00	10:20	09:00	13:40	11:00	11:00	14:50	11:00	14:50	11:00	14:50	11:00	14:50	11:00	14:50	
1.2	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
--	--	11.8	16.8	15.7	14.9	19.6	7.4	11.4	17.8	14.6	10.7	21.8	16.7	19.2	16.4	17.2	10.8	
5.95-9.5	--	11.44	5.80	4.34	4.25	8.18	6.05	8.15	5.34	5.65	1.03	10.01	5.90	4.80	2.45	2.99	7.03	
--	--	7.98	5.35	5.25	6.31	5.26	5.62	5.75	5.77	5.99	8.76	5.73	6.57	5.71	5.40	6.33	5.86	
--	--	194	153	104	135	106	109	114	108	89	288	225	37	457	167	101.2	92.2	
--	--	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
--	--	120	24	38	24	32	25	22	24	19	12	58	48	21	82	83	170	
--	--	67	68	57	37	89	53	39	65	79	24	65	120	190	91	96	160	
--	--	<0.05	<0.05	<0.05	0.69	<0.05	1.2	0.69	0.25	1.2	2.61	0.06	<0.05	<0.05	0.10	<0.05	0.26	
--	--	13000	<0.05	--	0.69	<0.05	--	0.69	--	--	2.61	0.06	<0.05	<0.05	--	--	--	
--	--	<0.01	--	--	<0.01	--	<0.01	--	<0.01	--	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	
--	--	60	19	<0.05	0.29	<0.05	<0.05	<0.05	0.05	0.1	0.07	0.31	0.19	<0.05	<0.05	0.20	<0.05	
--	--	6.5	10	7.7	4.7	11	6.3	4.5	7.2	7.4	5.5	10.0	8.5	13	13	7.4	5.7	
--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
5.0-9.0	--	6.59	4.54	5.40	5.48	6.24	5.31	6.42	6.55	6.28	6.4	6.9	5.43	5.96	6.30	6.05	5.47	
--	--	1.7	1.8	1.6	4.93	3.34	5.09	4.9	5.21	5.55	12.5	11.7	1.6	4.0	4.8	7.44	3.84	
--	--	0.3	0.5	0.5	1.08	0.79	1.09	0.91	0.92	1.19	1.7	2.0	0.4	0.7	0.9	0.59	1.00	
--	--	0.07	0.14	0.20	0.006	0.007	0.011	0.009	0.012	0.01	0.019	0.05	<0.02	0.04	0.034	0.010	0.038	
--	--	0.5	1.2	0.7	1.40	1.630	1.310	1.100	1.500	1.880	1.6	2.5	0.5	0.8	1.1	0.934	0.956	
--	--	15	25	13	15.9	14.5	14.6	14.8	10.2	8.26	36.3	27.7	15	51	55	83.7	12.1	
--	--	2.5	2.2	2.0	1.1	3.8	5.1	2.8	5.2	4.6	4.1	6.1	2.2	4.4	4.0	3.0	6.4	
--	--	7	80	2	<2	11	<2	11	<1	1	<1	9	6	<2	58	62	34	
--	--	5	3	8	8	<2	8	8	10	8	14	8	<2	3	11	11	5	
50	--	14.0	35	0.9	1.4	1.12	0.6	0.4	0.6	1.1	0.9	1.9	0.7	3.8	4.2	2.6	3.1	
--	--	100	140	92	130	100	110	110	100	88	231	231	85	290	310	590	160	
--	--	100	140	92	130	100	110	110	100	88	231	231	85	290	310	590	160	
--	--	0.77	1.12	0.73	1.11	0.71	0.88	1.03	0.95	0.80	2.55	2.02	0.60	2.37	2.62	5.13	1.27	
--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	22	25	<1	<1	<1	<1	<1	
--	--	50	73	45	67	50	63	65	58	54	150	117	42	150	165	282	93	
--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	
--	--	0.84	1.32	0.74	1.06	0.93	1.02	1.00	0.83	0.80	2.43	3.04	0.81	2.65	2.89	4.17	1.81	
--	--	6	6	17	12	17	12	17	19	18	38.2	37.5	6	13	16	23	14	
--	--	4.35	8.20	6.68	2.30	13.40	7.37	1.48	6.74	0.00	2.6	1.9	14.90	5.58	4.90	10.30	17.50	
--	--	NC	NC	NC	NC	NC	NC	NC	NC	NC	-3.50	-2.99	-2.77	-2.23	NC	-3.57	-3.72	
--	--	NC	NC	NC	NC	NC	NC	NC	NC	NC	-3.75	-3.25	-3.61	-3.09	NC	-3.82	-3.97	
--	--	NC	NC	NC	NC	NC	NC	NC	NC	NC	9.54	9.64	9.13	9.45	NC	9.87	9.77	
--	--	NC	NC	NC	NC	NC	NC	NC	NC	NC	10.20	9.80	9.49	9.45	NC	10.10	10.30	
--	--	5100	510	--	169	192	--	205	--	134	183	270	--	--	189	368	--	
--	--	<2	<2	--	<1.0	<1.0	--	<1.0	--	<2	<2	<2	--	<1.0	<1.0	<1.0	--	
--	--	5	22	--	<1.0	<1.0	--	<1.0	--	<2	<2	<2	--	<1.0	<1.0	<1.0	--	
--	--	<2	<2	--	<1.0	<1.0	--	<1.0	--	<2	<2	<2	--	<1.0	<1.0	<1.0	--	
--	--	<2	<2	--	<1.0	<1.0	--	<1.0	--	<2	<2	<2	--	<1.0	<1.0	<1.0	--	
--	--	1500	5	<0.3	<0.043	<0.017	--	0.023	--	0.034	<0.3	0.017	--	0.051	<0.017	--	<0.017	--
--	--	0.017	1	<2	--	<1.0	--	<1.0	--	<1	<1	<1	<1	<1.0	1.0	--	<1.0	--
--	--	<1	<1	--	<1.0	<1.0	--	<1.0	--	<0.40	--	<1.0	<1	<1.0	<0.77	<0.77	<0.40	--
--	--	2.0-4.0	2	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2	2	<2.0	<2.0	<2.0	2.5
--	--	300	720	--	146	637	150	107	209	219	102	107	209	219	102	1380	880	229
--	--	1.0-7.0	1.6	--	2.37	0.56	--	<0.50	--	<0.5	0.7	1.9	1.61	2.70	--	260	329	897
--	--	40	73	--	55.3	39.0	67.0	28.1	21.0	31.3	34	79	110	--	387	135	52.9	40.5
--	--	25-150	<2	--	<2.0	<2.0	--	<2.0	--	<2.0	<2	<2	<2	<2	<2.0	<2.0	<2.0	106
--	--	1	<2	--	<1.0	<1.0	--	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
--	--	0.1	<0.5	--	<0.10	<0.10	--	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--
--	--	11	8	<0.1	--	<0.10	--	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--
--	--	0.8	6	<2	--	<2.0	--	<2.0	--	<2.0	<2	<2	<2	<2	<2	<2	<2	--
--	--	15	<0.1	--	<0.10	<0.10	--	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--
--	--	30	21	--	<2	<2	--	<2.0	--	<2.0	<2	<2	<2	<2	<2	<2	<2	--
--	--	84	54	--	>250	--	>250	120	180	120	180	120	180	120	180	120	180	>250
400	--	400	400	--	>250	--	<1	12	17	5	1	78	3	68	4	230	4	250
400	--	400	400	--	19.29	19.60	19.40	18.12	18.12	16.61	16.61	16.61	16.61	16.61	16.61	16.61	16.61	16.61
400	--	400	400	--	17.50	17.50	17.50	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62
400	--	400	400	--	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40
400	--	400	400	--	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50	17.50
400	--	400	400	--	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40
400	--	400	400	--	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40
400	--	400	400	--	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40
400	--	400	400	--	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40	15.40
400	--	400	400	--	15.4													

Recreational Water Quality (Reference)	FWAL (Applied)	LSD										LU									
		2009/06/29	2009/08/13	2009/10/01	2010/05/31	2010/08/24	2010/11/01	2011/05/13	2011/08/14	2011/10/17	2012/05/01	2012/08/15	2011/10/17	2012/05/01	2012/08/15	2011/10/17	2012/05/01	2012/08/15			
		12:00	09:30	11:45	09:00	11:28	10:00	08:45	13:20	9:00	9:15	13:00	10:30	15:20	11:30						
1.2	--	N/A	N/A																		
--	--	13.1	16.7	15.3	13.4	21.3	7.3	10.2	21.0	12.0	5.7	25.7	11.3	12.8	27.3	6.17	6.2	4.24	4.24		
5.5-9.5	5.0	5.70	5.47	5.41	5.41	8.47	9.44	7.87	8.16	4.05	2.69	4.24	4.24	4.24	4.24	4.24	4.24	4.24	4.24		
--	--	7.88	6.74	6.34	6.42	6.64	6.17	7.09	6.88	6.63	8.22	7.16	6.07	7.82	6.65	6.65	6.65	6.65	6.65		
--	--	7.23	2.10	1.68	2.18	2.03	1.10	1.46	1.26	1.12	6.2	17.75	2.03	9.55	4.80	4.80	4.80	4.80	4.80		
--	--	13	16	12	13	21	9	9	15	12	21	14	12	14	14	14	14	14	14		
--	--	120	41	34	45	25	38	32	41	49	13	20	94	18	18	18	18	18	18		
--	--	32	27	37	20	26	33	25	17	22	22	33	34	224	224	224	224	224	224		
--	--	0.14	0.14	0.06	0.23	0.10	0.12	0.25	0.17	0.09	0.13	0.80	0.61	1.00	0.64	0.64	0.64	0.64	0.64		
--	--	13000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
--	--	60	<0.01	--	--	<0.01	--	<0.01	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
--	--	19	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
--	--	5.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
--	--	6.5-9	6.69	6.69	6.93	7.10	7.30	6.67	6.72	6.79	6.49	6.2	6.9	6.43	6.43	6.43	6.43	6.43	6.43		
--	--	6.5	6.9	5.4	7.99	10.5	5.29	5.9	5.14	5.04	2.6	18.1	7.63	30.7	30.7	30.7	30.7	30.7	30.7		
--	--	1.4	1.6	1.3	1.99	2.14	1.15	1.25	1.19	1.23	0.7	3.3	2.34	4.2	4.2	4.2	4.2	4.2	4.2		
--	--	<0.02	0.03	0.009	0.018	0.100	0.009	0.018	0.028	0.014	0.022	0.38	0.043	0.06	0.06	0.06	0.06	0.06	0.06		
--	--	1.2	1.1	1.3	1.80	1.210	1.030	1.070	0.960	1.240	0.6	1.9	2.110	3.2	3.2	3.2	3.2	3.2	3.2		
--	--	24	21	18	24.8	26.9	15.2	23.2	14.3	13.8	11.3	18.6	22.7	124	124	124	124	124	124		
--	--	3.1	4.2	4.0	3.2	3.4	4.3	2.6	3.9	3.8	3.1	2.9	6.9	4.9	4.9	4.9	4.9	4.9	4.9		
--	--	16	98	5	6	110	7	4	77	5	<5	16	13	5	5	5	5	5	5		
--	--	6	4	5	7	3	4	6	4	4	4	5	21	26	26	26	26	26	26		
--	--	50	--	12	2.5	12	6.2	1	0.6	2.5	1.7	6.7	283	3.3	4.1	4.1	4.1	4.1	4.1		
--	--	170	150	140	200	200	110	150	130	110	96	161	190	813	482	482	482	482	482		
--	--	1.56	0.82	1.22	1.80	1.77	0.97	1.39	1.14	0.96	1.15	1.37	1.69	7.21	4.12	4.12	4.12	4.12	4.12		
--	--	13	8	12	13	21	9	9	15	12	21	14	12	14	14	14	14	14	14		
--	--	92	55	74	104	107	62	84	66	60	56	163	109	426	426	426	426	426	426		
--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<10	<1	<10	<10	<10	<10	<10	<10		
--	--	1.53	0.99	1.20	1.69	1.94	1.05	1.44	1.02	1.00	0.76	3.59	1.70	4.30	4.30	4.30	4.30	4.30	4.30		
--	--	22	15	19	28	35	18	20	18	18	18	9.4	58.8	29	70.0	70.0	70.0	70.0	70.0		
--	--	0.97	9.39	0.83	3.15	4.58	3.96	1.77	5.56	2.04	20.7	63.0	0.29	1.3	2.2	2.2	2.2	2.2	2.2		
--	--	<2.74	<3.20	<2.60	<2.22	<1.71	<2.99	<2.88	<2.64	<3.05	<3.62	<2.30	<2.95	<2.32	<2.32	<2.32	<2.32	<2.32	<2.32		
--	--	<2.99	<3.45	<3.20	<2.47	<1.96	<3.24	<2.89	<3.13	<3.94	<9.54	<9.82	<9.20	<9.38	<9.02	<9.14	<9.14	<9.14	<9.14		
--	--	9.43	9.78	9.53	9.32	9.01	9.66	9.60	9.43	9.68	9.68	9.80	10.1	9.52	9.63	9.34	9.46	9.46	9.46		
--	--	9.68	10.00	9.78	9.57	9.26	9.91	9.85	9.68	9.68	9.68	9.80	10.1	9.52	9.63	9.34	9.46	9.46	9.46		
--	--	5-100	99	--	--	349	189	--	217	--	490	19200	--	218	227	227	227	227	227	227	
--	--	5	<2	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<2	8	--	<2	<2	<2	<2	<2	<2		
--	--	14	<2	--	--	15.3	19.2	--	13.9	--	11	86	--	--	<2	<2	<2	<2	<2		
--	--	<2	<2	--	--	<1.0	<1.0	--	<1.0	--	<2	2	--	--	<2	<2	<2	<2	<2		
--	--	1500	13	--	--	41.4	21.6	--	<50	--	6	24	--	--	11	11	11	11	11		
--	--	0.017	<0.3	--	--	0.018	<0.017	--	<0.017	--	0.029	1.050	--	--	0.538	0.538	0.538	0.538	0.538		
--	--	1	<2	--	--	<1.0	<1.0	--	<1.0	--	<1	11	--	--	<1	<1	<1	<1	<1		
--	--	2.0-4.0	<2	--	--	<0.40	0.88	--	<0.40	--	<2.0	22	--	--	34	--	<1	<1	<1		
--	--	300	180	--	--	554	965	120	211	384	161	384	2150	347	347	347	347	347	347		
--	--	1.0-7.0	<0.5	--	--	3.02	0.54	--	<0.50	--	0.6	82.4	--	--	0.8	0.7	0.7	0.7	0.7		
--	--	51	--	--	--	11.3	632	22.8	30.2	53.4	38.5	26	13200	129	182	485	485	485	485		
--	--	73	<2	--	--	<2.0	<2.0	--	<2.0	--	<2	<2	--	--	<2	<2	<2	<2	<2		
--	--	25-150	<2	--	--	<1.0	<1.0	--	<1.0	--	<1	13	--	--	<2	<2	<2	<2	<2		
--	--	1	<0.5	--	--	<0.10	<0.10	--	<0.10	--	<0.1	2	--	--	<1	<1	<1	<1	<1		
--	--	0.8	<0.1	--	--	<0.10	<0.10	--	<0.10	--	<0.1	0.1	--	--	<0.1	<0.1	<0.1	<0.1	<0.1		
--	--	<2	<2	--	--	<2.0	<2.0	--	<2.0	--	<2	2	--	--	<2	<2	<2	<2	<2		
--	--	15	<0.1	--	--	<0.10	<0.10	--	<0.10	--	<0.1	3	405	--	--	4	3	3	3		
--	--	<2	<2	--	--	<2.0	<2.0	--	<2.0	--	<2	1.18	1.41	--	--	1.18	1.18	1.18	1.18		
--	--	30	7	--	--	7.2	6.7	<5.0	<5.0	5	<5.0	5	110	9	9	79	79	79	79		
--	--	53	>250	--	>250	280	85	>250	85	9:15	9:15	9:15	1414	>2420	--	>2420	>2420	>2420	>2420		
--	--	22	24	--	45	6	1	10	10	>250	<100	2	26	<100	<1	<1	2	2	2		
--	--	400	--	--	1	<1	--	--	--	--	--	--	--	--	--	--	--	--	--		
--	--	400	--	--	1.46	10.70	4.68	1.21	6.64	0.21	1.19	1.93	1.41	1.41	1.41	1.41	1.41	1.41	1.41		
--	--	--	--	--	1.85	11.10	5.62	1.32	7.71	0.19	1.07	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5	0.5	0.5	0.5		

FWAL Recalculated Water Quality (Applied)	PM1.1												PM1.2													
	2009/06/29	2009/08/13	2009/10/01	2010/05/31	2010/08/24	2010/11/01	2011/05/13	2011/08/14	2012/05/01	2012/08/16	2012/09/29	2009/06/13	2009/10/01	2010/05/31	2010/08/24	2010/11/01	2011/05/13	2011/08/14	2012/05/01	2012/08/16	2012/09/29					
1.2	--	3.2	N/A	N/A	N/A	N/A	N/A	N/A	--	--	--	2.8	2.2	2.3	N/A	3.0	2.0	2.2	2.3	2.3	2.3	--	--	--		
--	--	15.7	17.1	16.2	13.2	22.7	9.1	10.3	22.1	13.6	8.3	14.8	24.2	19.7	17.3	25.3	10.1	10.9	23.1	23.1	23.1	--	--	--		
--	--	5.59.5	10.56	8.10	6.90	8.76	7.83	10.43	10.39	8.17	9.54	8.41	10.20	8.30	8.40	8.73	8.30	8.40	8.73	8.73	8.73	10.58	8.7	--		
--	--	7.39	6.57	6.64	7.06	7.35	5.89	6.28	6.20	6.11	7.58	--	6.36	6.82	6.84	7.09	7.39	6.53	6.31	6.67	6.67	6.67	6.67	--	--	
--	--	561	279	233	265	234	125	177	174	106	366	--	267	264	241	237	234	201	159	173	173	173	173	--	--	
--	--	6	7	7	9	5	6	7	7	20	--	5	7	7	6	8	7	7	<5	8	8	7	7	8		
--	--	120	39	64	58	67	61	24	43	48	55	--	63	63	58	62	58	50	44	43	38	38	38	--	--	
--	--	54	15	21	19	12	57	32	38	65	38	--	22	17	19	20	13	23	23	25	38	38	38	--	--	
--	--	0.49	0.10	0.17	0.42	0.27	0.66	0.55	0.15	0.62	0.22	--	0.14	0.07	0.09	0.19	0.11	0.23	0.33	0.14	--	--	--	--	--	
--	--	13000	0.49	--	--	--	<0.01	--	<0.01	--	<0.01	--	<0.05	--	<0.01	--	<0.01	--	<0.01	<0.01	<0.01	--	--	--	--	--
--	--	19	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	--	
--	--	6.5	3.6	4.7	3.3	6.7	4.6	5	8.3	5.7	--	3.6	4.5	3.2	3.4	3.6	4	6	4	6	6	6	6	--	--	
--	--	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	--	
--	--	6.59	6.36	6.75	6.79	6.63	7.04	6.58	6.54	6.83	6.67	6.6	6.50	6.81	6.82	6.66	7.02	6.83	6.37	6.60	6.60	6.60	6.60	6.60	--	
--	--	4.5	6.9	8.37	9.02	5.90	6.02	4.99	4.64	6.0	6.0	--	6.1	7.1	7.17	7.96	5.30	4.76	5.30	4.76	5.30	4.76	4.76	4.76	--	
--	--	0.6	1.1	1.0	1.25	1.22	0.82	0.98	0.85	1.0	0.019	--	1.0	1.1	1.1	1.1	1.25	1.17	1.20	0.93	0.86	0.86	0.86	0.86	--	
--	--	<0.02	0.002	0.018	0.02	0.002	0.014	0.011	0.03	0.019	0.019	--	0.02	0.002	0.010	0.002	0.002	0.002	0.002	0.002	0.009	0.009	0.009	0.009	--	
--	--	0.9	0.9	1.160	1.340	1.230	1.060	1.060	1.071	1.430	0.8	--	0.9	1.0	0.9	0.9	0.900	1.020	0.861	0.801	0.801	0.801	0.801	--		
--	--	25	38	34	35.2	40.2	18.4	26.8	22.8	22.8	22.8	--	33.6	35	40	34	31.1	35.1	30.8	25.7	25.7	25.7	25.7	25.7	--	
--	--	4.5	2.6	2.8	3.8	3.4	5.9	3.7	2.6	5.4	2.9	--	2.6	2.5	2.3	2.3	2.3	2.3	2.5	2.5	2.5	2.5	2.5	2.5	--	
--	--	<2	3	9	7	<2	<1	1	<2	5	9	--	2	3	<1	15	<2	11	<1	8	8	8	8	8	--	
--	--	13	11	12	12	12	12	12	12	12	12	--	11	11	11	11	10	10	10	9	10	10	10	10	--	
--	--	0.4	0.5	0.6	0.8	0.9	0.5	0.6	1	1.2	0.7	--	0.8	0.7	0.6	0.6	1.0	0.8	0.4	0.4	0.4	0.4	0.4	--		
--	--	170	250	230	260	250	130	180	170	100	214	--	240	250	230	230	230	230	230	230	230	230	230	230	--	
--	--	1.51	2.18	1.99	2.34	2.15	1.09	1.62	1.56	0.92	2.11	--	2.11	2.17	1.99	2.07	2.01	1.77	1.46	1.58	1.58	1.58	1.58	1.58	--	
--	--	6	7	7	9	5	6	7	7	20	--	5	7	7	7	6	8	7	1	8	8	8	8	--		
--	--	93	129	118	137	134	134	100	90	63	117	--	123	131	117	120	120	120	110	91	89	89	89	89	--	
--	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	--	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	--	
--	--	1.40	2.11	1.89	2.11	2.33	1.20	1.58	1.35	0.95	1.89	--	1.94	2.23	1.88	2.03	1.86	1.48	1.28	1.28	1.28	1.28	1.28	1.28	--	
--	--	14	22	20	26	28	18	19	16	15	19.1	--	20	22	20	23	24	25	17	15	15	15	15	15	--	
--	--	3.78	1.63	2.58	5.17	4.02	4.80	1.25	7.22	1.60	5.5	--	4.20	1.36	2.84	4.81	0.50	2.48	0.68	10.50	10.50	10.50	10.50	10.50	--	
--	--	<3.57	<2.90	<2.94	<2.43	<3.25	<2.43	<3.27	<2.94	<3.13	<2.91	--	<3.33	<2.83	<2.93	<3.06	<2.55	<2.80	<2.80	<2.80	<2.80	<2.80	<2.80	<2.80	--	
--	--	<3.82	<3.15	<3.19	<3.21	<3.21	<2.68	<3.53	<3.19	<3.23	<3.19	--	<3.59	<3.08	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	<3.18	--	
--	--	9.93	9.65	9.73	9.59	9.47	9.83	9.81	9.77	9.80	9.51	--	9.83	9.51	9.64	9.75	9.72	9.57	9.63	9.78	9.78	9.78	9.78	9.78	--	
--	--	10.20	9.90	9.98	9.84	9.72	10.10	10.10	10.10	10.10	9.83	--	10.10	10.10	9.89	9.97	10.00	9.97	9.88	9.88	9.88	9.88	9.88	9.88	--	
--	--	5-100	260	--	--	665	--	45.9	--	233	--	--	177	--	130	--	1030	--	55.8	--	202	--	202	--	--	
--	--	5	<2	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	
--	--	23	<2	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	
--	--	2.0-4.0	<2	--	--	2.0	<2.0	4.0	<2.0	2.3	<2.0	--	2.3	<2.0	2.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	
--	--	300	140	--	--	837	--	89	141	315	528	--	137	--	100	--	1090	--	151	76	143	699	699	699	--	
--	--	1.0-7.0	<0.5	--	--	1.73	<0.50	--	<0.50	<0.50	<0.50	--	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--	
--	--	0.8	<0.1	--	--	17	--	142	68.9	41.3	144	--	62.4	48	58	--	159	81.0	28.0	33.8	33.8	33.8	33.8	33.8	--	
--	--	73	<2	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	
--	--	25-150	<2	--	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	
--	--	1	<2	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	
--	--	0.1	<0.5	--	--	18	--	36.3	37.1	25	37.1	--	26	--	30	--	34.7	32.8	25.7	25.7	25.7	25.7	25.7	--		
--	--	0.8	<0.1	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	
--	--	15	<0.1	--	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	--	
--	--	30																								

ATTACHMENT 1

Field Reports

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5						
Client:	Halifax Regional Municipality							
Site: Kearney Lake	Location: Kearney Lake Road							
Watercourse: Kearney Lake	Site ID: KL1							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
Other:	<input type="checkbox"/>							
GPS Coordinates:	20T 0445718E, 4948496N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny
Air Temperature:	25°C
Cloud Cover:	None
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Off Kearney Lake Road

Field Parameter Data

	Remarks
Date (d.m.y):	14.August.2012
Sample Depth (m):	1.0
pH:	6.91
Dissolved Oxygen (mg/L):	7.93
Secchi Depth (m):	5.36
Water Temperature (degrees Celsius):	23.3
Conductivity ($\mu\text{s}/\text{cm}$):	279

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5						
Client:	Halifax Regional Municipality							
Site: Kearney Lake	Location: Kearney Lake Road							
Watercourse: Kearney Lake	Site ID: KL2							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
Other:	<input type="checkbox"/>							
GPS Coordinates:	20T 0443942E, 4949803N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny
Air Temperature:	25°C
Cloud Cover:	None
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Collins Road, through wooded area

Field Parameter Data

	Remarks
Date (d.m.y):	14.August.2012
Sample Depth (m):	1.0
pH:	6.41
Dissolved Oxygen (mg/L):	5.82
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	21.8
Conductivity ($\mu\text{s}/\text{cm}$):	96.6

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5		
Client:	Halifax Regional Municipality			
Site: Kearney Lake Run	Location: Kearney Lake Road			
Watercourse: Kearney Lake Run	Site ID: KL3			
Monitoring Well	<input type="checkbox"/> Pumping Well	<input checked="" type="checkbox"/> Surface Water	<input type="checkbox"/> Spring/Seep	<input type="checkbox"/> Discharge Pipe
<input type="checkbox"/> Other:				
GPS Coordinates:	20T 0444390E, 4950406N (UTM, NAD83)			
SLE Field Personnel:	Allain Thebeau			

Site Conditions

Weather:	Sunny
Air Temperature:	25°C
Cloud Cover:	None
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Via walking path off Kearney Lake Road

Field Parameter Data

	Remarks
Date (d.m.y):	14.August.2012
Sample Depth (m):	1.0
pH:	6.85
Dissolved Oxygen (mg/L):	8.17
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	24.5
Conductivity ($\mu\text{s}/\text{cm}$):	225

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5		
Client:	Halifax Regional Municipality			
Site: Kearney Lake Run	Location: Kearney Lake Road			
Watercourse: Kearney Lake Run	Site ID: KL4			
Monitoring Well	<input type="checkbox"/> Pumping Well	<input checked="" type="checkbox"/> Surface Water	<input type="checkbox"/> Spring/Seep	<input type="checkbox"/> Discharge Pipe
<input type="checkbox"/> Other:				
GPS Coordinates:	20T 0444463E, 4950571N (UTM, NAD83)			
SLE Field Personnel:	Allain Thebeau			

Site Conditions

Weather:	Sunny
Air Temperature:	25°C
Cloud Cover:	None
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Via walking path off Kearney Lake Road

Field Parameter Data

	Remarks
Date (d.m.y):	14.August.2012
Sample Depth (m):	1.0
pH:	6.71
Dissolved Oxygen (mg/L):	7.32
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	24.4
Conductivity ($\mu\text{s}/\text{cm}$):	225

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 9						
Client:	Halifax Regional Municipality							
Site: Kearney Lake	Location: Kearney Lake Road							
Watercourse: Kearney Lake	Site ID: KL5							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
Other:	<input type="checkbox"/>							
GPS Coordinates:	20T 4949142E, 445280N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny
Air Temperature:	10°C
Cloud Cover:	None
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Along Kearney Lake Road

Field Parameter Data

	Remarks
Date (d.m.y):	14.August.2012
Sample Depth (m):	1.0
pH:	6.69
Dissolved Oxygen (mg/L):	7.90
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	26.1
Conductivity ($\mu\text{s}/\text{cm}$):	229

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5		
Client:	Halifax Regional Municipality			
Site: Lake Shore Drive	Location: Kingswood Subdivision			
Watercourse: Marsh @ Lakeshore Dr.	Site ID: LSD			
Monitoring Well	<input type="checkbox"/> Pumping Well	<input checked="" type="checkbox"/> Surface Water	<input type="checkbox"/> Spring/Seep	<input type="checkbox"/> Discharge Pipe
<input type="checkbox"/> Other:				
GPS Coordinates:	20T 0442583E, 4950431N (UTM, NAD83)			
SLE Field Personnel:	Allain Thebeau			

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Via Lakeshore Drive in Kingswood Subdivision

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	1.0
pH:	7.16
Dissolved Oxygen (mg/L):	2.69
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	25.7
Conductivity ($\mu\text{s}/\text{cm}$):	177.5

Additional Comments / Notes

Water Level very low

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5
Client:	Halifax Regional Municipality	
Site: Highway 102	Location: Highway 102, south of exit 3	
Watercourse: Marsh area	Site ID: HWY 102-1	
Monitoring Well	<input type="checkbox"/> Pumping Well	<input checked="" type="checkbox"/> Surface Water
<input type="checkbox"/> Other:	<input type="checkbox"/> Spring/Seep	<input type="checkbox"/> Discharge Pipe
GPS Coordinates:	20T 0444708E, 4951644N (UTM, NAD83)	
SLE Field Personnel:	Allain Thebeau	

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Off Highway 102

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	1.0
pH:	5.73
Dissolved Oxygen (mg/L):	1.03
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	21.8
Conductivity ($\mu\text{s}/\text{cm}$):	225

Additional Comments / Notes

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5						
Client:	Halifax Regional Municipality							
Site: Highway 102	Location: HWY 102, south of exit 3							
Watercourse: Marsh area	Site ID: HWY 102-2							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
Other:	<input type="checkbox"/>							
GPS Coordinates:	20T 0444829E, 4951778N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Off Kearney Lake Road

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	1.0
pH:	6.37
Dissolved Oxygen (mg/L):	13.1
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	23.7
Conductivity ($\mu\text{s}/\text{cm}$):	226

Additional Comments / Notes

Dissolved Oxygen reading is considered to be elevated.

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5						
Client:	Halifax Regional Municipality							
Site: Paper Mill Lake	Location: Moirs Mill Subdivision							
Watercourse: Paper Mill Lake	Site ID: PML1							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
<input type="checkbox"/>	Other:							
GPS Coordinates:	20T 0445129E, 4951154N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Via French Mast Lane in Moirs Mill Subdivision

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	N/A
pH:	N/A
Dissolved Oxygen (mg/L):	N/A
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	N/A
Conductivity ($\mu\text{s}/\text{cm}$):	N/A

Additional Comments / Notes

Lake water level has been reduced; shore line is approximately 20 meters from what is normal.
Water level is reduced by approximately 2 meters or more.
No sample was collected due to unstable ground hazards.

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 2, 3, 4, 5						
Client:	Halifax Regional Municipality							
Site: Paper Mill Lake	Location: Moirs Mill Subdivision							
Watercourse: Paper Mill Lake	Site ID: PML2							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
<input type="checkbox"/>	Other:							
GPS Coordinates:	20T 0445363E, 4951740N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	Via Lake Dr., off Hammonds Plains Rd.

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	N/A
pH:	N/A
Dissolved Oxygen (mg/L):	N/A
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	N/A
Conductivity ($\mu\text{s}/\text{cm}$):	N/A

Additional Comments / Notes

Lake water level has been reduced; shore line is approximately 20 meters from what is normal.
Water level is reduced by approximately 2 meters or more.
No sample was collected due to unstable ground hazards.

FIELD REPORT

Project:	Water Quality Monitoring - Bedford West	Sub-Area(s): 9						
Client:	Halifax Regional Municipality							
Site: Larry Uteck Blvd.	Location: Larry Uteck off-ramp							
Watercourse: Pond	Site ID: LU							
Monitoring Well	<input type="checkbox"/>	Pumping Well	<input checked="" type="checkbox"/>	Surface Water	<input type="checkbox"/>	Spring/Seep	<input type="checkbox"/>	Discharge Pipe
Other:	<input type="checkbox"/>							
GPS Coordinates:	20T 4949816E, 445042N (UTM, NAD83)							
SLE Field Personnel:	Allain Thebeau							

Site Conditions

Weather:	Sunny with Clouds
Air Temperature:	26°C
Cloud Cover:	Partial
Wildlife Sightings:	N/A
Site Accessibility: Accessible	From Larry Uteck Blvd. off-ramp, Halifax-bound

Field Parameter Data

	Remarks
Date (d.m.y):	15.August.2012
Sample Depth (m):	1.0
pH:	6.65
Dissolved Oxygen (mg/L):	8.2
Secchi Depth (m):	N/A
Water Temperature (degrees Celsius):	27.3°C
Conductivity (µs/cm):	480

Additional Comments / Notes

ATTACHMENT 2

Site Photographs

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 1: KL1, Kearney Lake sample location



Photo 2: KL2, Kearney Lake sample location

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 3: KL3, Kearney Lake sample location



Photo 4: KL4, Kearney Lake sample location

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 5: KL5, Kearney Lake sample location



Photo 6: LSD, Lake Shore Drive sample location

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 7: Hwy102-1 sample location



Photo 8: Hwy102-2 sample location

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 9: PML1, Paper Mill Lake sample location (sample not collected)



Photo 10: PML2, Paper Mill Lake sample location (sample not collected)

Attachment 2: Site Photographs
Water Quality Monitoring within Bedford West – August 2012
Bedford, Nova Scotia



Photo 11: LU, Larry Uteck off-ramp sample location

ATTACHMENT 3

Laboratory Certificates of Analysis

**CLIENT NAME: SNC-LAVALIN
5657 SPRING GARDEN RD, SUITE 200
HALIFAX , NS B3J3R4
(902) 492-4544**

ATTENTION TO: Andrew Paris

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

MICROBIOLOGY ANALYSIS REVIEWED BY: Kory Rodenhiser, Analyst

WATER ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Aug 28, 2012

PAGES (INCLUDING COVER): 13

VERSION*: 1

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

***NOTES**

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630893

PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Total Coliforms and E.coli (MPN)

DATE SAMPLED: Aug 11, 2012				DATE RECEIVED: Aug 15, 2012				DATE REPORTED: Aug 28, 2012				SAMPLE TYPE: Water	
Parameter	Unit	G / S	RDL	LSD	HWY-102-1	HWY-102-2	LU	3614533	3614533	3614541			
E. Coli (MPN)	MPN/100 mL	1	26	68	16	16	2						
Total Coliforms (MPN)	MPN/100 mL	1	>2420	>2420	>2420	>2420	>2420						

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

11 Morris Drive, Unit 122
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Certificate of Analysis
AGAT WORK ORDER: 12X630893
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

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Dartmouth, Nova Scotia
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<http://www.agatlabs.com>

Chlorophyll A						
DATE SAMPLED: Aug 11, 2012			DATE RECEIVED: Aug 15, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	LSD	HWY-102-1	HWY-102-2	LU
Chlorophyll A - Acidification Method	ug/L	0.05	6.62	3614526	3614533	3614541
Chlorophyll A - Welschmeyer Method	ug/L	0.05	7.58	2.59	21.03	32.52
				2.89	17.26	31.31

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

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Certificate of Analysis
AGAT WORK ORDER: 12X630893
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Standard Water Analysis + Metals (Total)						
DATE SAMPLED: Aug 11, 2012			DATE RECEIVED: Aug 15, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	LSD	HWY-102-1	HWY-102-2
pH				6.9	6.9	6.7
Reactive Silica as SiO ₂	mg/L	0.5	2.9	6.1	6.9	7.2
Chloride	mg/L	1	33	48	109	116
Fluoride	mg/L	0.1	<0.1	<0.1	<0.1	<0.1
Sulphate	mg/L	2	5	8	6	25
Alkalinity	mg/L	5	14	25	7	14
True Color	TCU	5	20	65	100	14
Turbidity	NTU	0.1	283	1.9	10.8	23.0
Electrical Conductivity	umho/cm	1	161	231	403	482
Nitrate + Nitrite as N	mg/L	0.05	0.80	0.06	<0.05	0.64
Nitrate as N	mg/L	0.05	0.80	0.06	<0.05	0.64
Nitrite as N	mg/L	0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L	0.03	<0.03	0.19	<0.03	0.16
Total Organic Carbon	mg/L	0.5	8.0	10.0	15.8	22.8
Ortho-Phosphate as P	mg/L	0.01	<0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L	0.1	18.6	27.7	63.6	62.2
Total Potassium	mg/L	0.1	1.9	2.5	1.7	3.6
Total Calcium	mg/L	0.1	18.1	11.7	8.4	22.1
Total Magnesium	mg/L	0.1	3.3	2.0	1.4	3.6
Total Phosphorous	mg/L	0.02	0.38	0.05	0.09	0.06
Bicarb. Alkalinity (as CaCO ₃)	mg/L	5	14	25	7	14
Carb. Alkalinity (as CaCO ₃)	mg/L	10	<10	<10	<10	<10
Hydroxide	mg/L	5	<5	<5	<5	<5
Calculated TDS	mg/L	1	163	117	200	246
Hardness	mg/L	58.8	37.5	26.7	70.0	
Langelier Index (@20C)	NA	-2.30	-2.23	-3.15	-1.94	
Langelier Index (@ 4C)	NA	-2.62	-2.55	-3.47	-2.26	
Saturation pH (@ 20C)	NA	9.20	9.13	9.85	9.14	
Saturation pH (@ 4C)	NA	9.52	9.45	10.2	9.46	
Anion Sum	meL	1.37	2.02	3.34	4.12	
Cation sum	meL	6.04	2.10	3.59	4.30	
% Difference/ Ion Balance (NS)	%	63.0	1.9	3.6	2.2	
Total Aluminum	ug/L	5	19200	183	466	227

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AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630893
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Standard Water Analysis + Metals (Total)						
DATE SAMPLED: Aug 11, 2012			DATE RECEIVED: Aug 15, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	LSD	HWY-102-1	HWY-102-2
Total Antimony	ug/L		2	<2	<2	<2
Total Arsenic	ug/L		2	8	<2	<2
Total Barium	ug/L		5	284	74	86
Total Beryllium	ug/L		2	2	<2	<2
Total Bismuth	ug/L		2	<2	<2	<2
Total Boron	ug/L		5	24	18	17
Total Cadmium	ug/L		0.017	1.05	0.021	0.031
Total Chromium	ug/L		1	11	<1	<1
Total Cobalt	ug/L		1	34	<1	1
Total Copper	ug/L		2	22	<2	3
Total Iron	ug/L		50	38900	1380	5210
Total Lead	ug/L		0.5	82.4	0.7	5.2
Total Manganese	ug/L		2	13200	79	219
Total Molybdenum	ug/L		2	<2	<2	<2
Total Nickel	ug/L		2	13	<2	<2
Total Selenium	ug/L		1	2	<1	<1
Total Silver	ug/L		0.1	0.1	<0.1	<0.1
Total Strontium	ug/L		5	82	58	45
Total Thallium	ug/L		0.1	0.2	<0.1	<0.1
Total Tin	ug/L		2	<2	<2	<2
Total Titanium	ug/L		2	405	3	10
Total Uranium	ug/L		0.1	1.6	<0.1	<0.1
Total Vanadium	ug/L		2	30	<2	2
Total Zinc	ug/L		5	110	6	7

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

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Certificate of Analysis

AGAT WORK ORDER: 12X630893

PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

TP (Water)					
DATE RECEIVED: Aug 15, 2012			DATE REPORTED: Aug 28, 2012		
Parameter	Unit	G / S	LSD	HWY-102-1	HWY-102-2
Total Phosphorus	mg/L	0.006	0.063	3614526	3614533

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

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Certificate of Analysis

AGAT WORK ORDER: 12X630893

PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

TSS, TKN						
DATE SAMPLED: Aug 11, 2012			DATE RECEIVED: Aug 15, 2012		DATE REPORTED: Aug 28, 2012	
Parameter	Unit	G / S	LSD	HWY-102-1	HWY-102-2	SAMPLE TYPE: Water
Total Suspended Solids	mg/L	5	16	6	39	LU
Total Kjeldahl Nitrogen as N	mg/L	0.4	3.5	1.3	1.1	165
Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard						

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Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

Microbiology Analysis

RPT Date: Aug 28, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	

Total Coliforms and E.coli (MPN)

E. Coli (MPN)	1	3614526	60	68	12.5%	< 1	0%	0%	0%	0%	0%	0%	0%	0%
Total Coliforms (MPN)	1	3614526	>2420	>2420	0.0%	< 1	0%	0%	0%	0%	0%	0%	0%	0%

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Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

Water Analysis																
RPT Date: Aug 28, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
							Lower	Upper	Lower	Upper	Lower	Upper				
Standard Water Analysis + Metals (Total)																
pH	1	3612726	7.7	7.7	0.0%	<	100%	80%	120%	80%	120%	80%	120%			
Reactive Silica as SiO2	1	3619249	14.2	14.2	0.0%	< 0.5	94%	80%	120%	80%	120%	102%	80% 120%			
Chloride	1	3617011	14	14	0.0%	< 1	103%	80%	120%	80%	120%	100%	80% 120%			
Fluoride	1	3617011	< 0.1	< 0.1	0.0%	< 0.1	104%	80%	120%	80%	120%	94%	80% 120%			
Sulphate	1	3617011	4	4	0.0%	< 2	108%	80%	120%	80%	120%	107%	80% 120%			
Alkalinity	1	3612726	55	55	0.0%	< 5	99%	80%	120%	80%	120%	90%	80% 120%			
True Color	1	3617011	8	8	0.0%	< 5	100%	80%	120%	80%	120%	80%	80% 120%			
Turbidity	1	3617775	0.2	0.3	40.0%	< 0.1	88%	80%	120%	80%	120%	80%	80% 120%			
Electrical Conductivity	1	3612726	154	155	0.6%	< 1	99%	80%	120%	80%	120%	80%	80% 120%			
Nitrate as N	1	3617011	0.14	0.14	0.0%	< 0.05	100%	80%	120%	80%	120%	94%	80% 120%			
Nitrite as N	1	3617011	< 0.05	< 0.05	0.0%	< 0.05	101%	80%	120%	80%	120%	96%	80% 120%			
Ammonia as N	1	3617949	0.10	0.13	26.1%	< 0.03	96%	80%	120%	80%	120%	120%	80% 120%			
Total Organic Carbon	1	3619149	1.8	1.9	5.4%	< 0.5	109%	80%	120%	80%	120%	94%	80% 120%			
Ortho-Phosphate as P	1	3619249	0.02	0.02	0.0%	< 0.01	101%	80%	120%	80%	120%	100%	80% 120%			
Total Sodium	82020	3619154	5.3	5.5	3.7%	< 0.1	105%	80%	120%	97%	80%	120%	106% 70% 130%			
Total Potassium	82020	3619154	1.10	1.16	5.3%	< 0.1	105%	80%	120%	104%	80%	120%	86% 70% 130%			
Total Calcium	82020	3619154	4.7	4.9	4.2%	< 0.1	107%	80%	120%	106%	80%	120%	94% 70% 130%			
Total Magnesium	82020	3619154	1.4	1.4	0.0%	< 0.1	104%	80%	120%	101%	80%	120%	95% 80% 120%			
Total Phosphorous	82020	3619154	0.03	0.03	0.0%	< 0.02	117%	80%	120%	110%	80%	120%	89% 70% 130%			
Bicarb. Alkalinity (as CaCO3)	1	3612726	55	55	0.0%	< 5	80%	80%	120%	80%	120%	80%	80% 120%			
Carb. Alkalinity (as CaCO3)	1	3612726	< 10	< 10	0.0%	< 10	80%	80%	120%	80%	120%	80%	80% 120%			
Hydroxide	1	3612726	< 5	< 5	0.0%	< 5	80%	80%	120%	80%	120%	80%	80% 120%			
Total Aluminum	82020	3619154	< 5	< 5	0.0%	< 5	107%	80%	120%	106%	80%	120%	96% 70% 130%			
Total Antimony	82020	3619154	< 2	< 2	0.0%	< 2	91%	80%	120%	109%	80%	120%	101% 70% 130%			
Total Arsenic	82020	3619154	5	6	18.2%	< 2	96%	80%	120%	93%	80%	120%	102% 70% 130%			
Total Barium	82020	3619154	8	8	0.0%	< 5	99%	80%	120%	97%	80%	120%	113% 70% 130%			
Total Beryllium	82020	3619154	< 2	< 2	0.0%	< 2	95%	80%	120%	92%	80%	120%	118% 70% 130%			
Total Bismuth	82020	3619154	< 2	< 2	0.0%	< 2	98%	80%	120%	87%	80%	120%	122% 70% 130%			
Total Boron	82020	3619154	6	6	0.0%	< 5	95%	80%	120%	92%	80%	120%	115% 70% 130%			
Total Cadmium	82020	3619154	0.052	0.052	0.0%	< 0.017	101%	80%	120%	99%	80%	120%	103% 70% 130%			
Total Chromium	82020	3619154	< 1	< 1	0.0%	< 1	114%	80%	120%	80%	80%	120%	93% 70% 130%			
Total Cobalt	82020	3619154	< 1	< 1	0.0%	< 1	110%	80%	120%	106%	80%	120%	88% 70% 130%			
Total Copper	82020	3619154	99	105	5.9%	< 2	109%	80%	120%	108%	80%	120%	94% 70% 130%			
Total Iron	82020	3619154	< 50	< 50	0.0%	< 50	109%	80%	120%	113%	80%	120%	89% 70% 130%			
Total Lead	82020	3619154	< 0.5	< 0.5	0.0%	< 0.5	100%	80%	120%	99%	80%	120%	119% 70% 130%			
Total Manganese	82020	3619154	51	53	3.8%	< 2	112%	80%	120%	114%	80%	120%	82% 70% 130%			
Total Molybdenum	82020	3619154	< 2	< 2	0.0%	< 2	99%	80%	120%	92%	80%	120%	111% 70% 130%			
Total Nickel	82020	3619154	< 2	< 2	0.0%	< 2	112%	80%	120%	89%	80%	120%	91% 70% 130%			
Total Selenium	82020	3619154	< 1	< 1	0.0%	< 1	102%	80%	120%	89%	80%	120%	89% 70% 130%			



Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

Water Analysis (Continued)

RPT Date: Aug 28, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper	Lower			Lower	Upper		Lower	Upper		Lower	Upper
Total Silver	82020	3619154	< 0.1	< 0.1	0.0%	< 0.1	101%	80%	120%	99%	80%	120%	102%	70%	130%
Total Strontium	82020	3619154	34	36	5.7%	< 5	100%	80%	120%	98%	80%	120%	99%	70%	130%
Total Thallium	82020	3619154	< 0.1	< 0.1	0.0%	< 0.1	98%	80%	120%	96%	80%	120%	114%	70%	130%
Total Tin	82020	3619154	< 2	< 2	0.0%	< 2	97%	80%	120%	101%	80%	120%	109%	70%	130%
Total Titanium	82020	3619154	< 2	< 2	0.0%	< 2	107%	80%	120%	103%	80%	120%	91%	70%	130%
Total Uranium	82020	3619154	< 0.1	< 0.1	0.0%	< 0.1	98%	80%	120%	98%	80%	120%	125%	70%	130%
Total Vanadium	82020	3619154	< 2	< 2	0.0%	< 2	105%	80%	120%	101%	80%	120%	87%	70%	130%
Total Zinc	82020	3619154	14	15	6.9%	< 5	103%	80%	120%	103%	80%	120%	87%	70%	130%
TSS, TKN															
Total Suspended Solids	1	3613877	<5	<5	0.0%	< 5	98%	80%	120%		120%	120%	101%	80%	120%
Total Kjeldahl Nitrogen as N	1	3612707	1.4	1.0	33.3%	< 0.4	103%	80%	120%		80%	120%	103%	80%	120%
TSS, TKN															
Total Suspended Solids	1	3633258	<5	<5	0.0%	< 5	100%	80%	120%		120%	120%	105%	80%	120%
TP (Water)															
Total Phosphorus	1	3614513	0.063	0.063	0.0%	< 0.006	98%	90%	110%	107%	90%	110%	97%	80%	120%

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Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR
Total Coliforms (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR

Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Chlorophyll A - Acidification Method		Acidification Method	
Chlorophyll A - Welschmeyer Method		Welschmeyer Method	
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO ₂	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC-TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH3 G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	ICP/MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC-TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC-TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340B	CALCULATION
Langelier Index (@20C)			CALCULATION
Langelier Index (@ 4C)			CALCULATION
Saturation pH (@ 20C)			CALCULATION
Saturation pH (@ 4C)			CALCULATION
Anion Sum		SM 1030E	CALCULATION
Cation sum		SM 1030E	CALCULATION
% Difference/ Ion Balance (NS)		SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS



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Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630893

ATTENTION TO: Andrew Paris

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorus	INOR-93-1022	SM 4500-P B & E	SPECTROPHOTOMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER



Chain of Custody Record

Report To

Company: SNC Lavalin
 Contact: Derek Heath
 Address: 5657 Spring Garden Road, Suite 200
 Phone: +1 (902) 492-4544 Fax:

PO#:

AGAT Quotation: 12-761

Client Project Name/#: 510192-0001

Contact:

Address:

Phone:

PO#/Credit Card #:

Report Information

1. Name: Andrew Paris
 Email: andrew.paris@snclavalin.com
 2. Name: Alain Thebeau
 Email: alain.thebeau@snclavalin.com

Report Format

- Single Sample per page
 Multiple Samples per page
 Excel Format Included

Date Required: _____

Ph.: 902.468.8718 • Fax: 902.468.8924

weearth.agatlabs.com • www.agatlabs.com

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT 24 to 48 hours

48 to 72 hours

Regulatory Requirements (Check):

- List Guidelines on Report
 Do not List Guidelines on Report
 PIRI

- Same Yes / No

- Company:

- Contact:

- Address:

- Phone:

- Fax:

- PO#:

- Tier 1 Res
 Gas Coarse
 Gas Com
 Pot Fine
 Sediment Lub
 Storm Water N/Pot
 Other

- CCME

- Industrial CDWQ
 Commercial NSDFOSP
 Res./Park HRM 101
 Agricultural Storm Water
 FWAL Waste Water
 Sediment

Laboratory Use Only

Arrival Condition: Good Poor (see notes)
 Arrival Temperature: 2 4
 AGAT Job Number: 12X630893
 Notes: _____

Notes:

Hazardous (Y/N)

Preserved (Y/N)

Number of Containers

Chlorophyll A

TSS & TKN

Low Level Total Phosphorus

Standard Water + Metals

Routine Potability

Detailed Salinity

AB Class II Landfill

CME PHC BETX/F-1-F4

Microbox

Metals

E.Coli

Stainless Steel

Route 2

Lab Sample

Date Required: _____

Original Signed _____
 Samples received by (Print name & sign): _____

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 Samples received by (Print name & sign): _____

CLIENT NAME: SNC-LAVALIN
5657 SPRING GARDEN RD, SUITE 200
HALIFAX , NS B3J3R4
(902) 492-4544

ATTENTION TO: Derek Heath

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

MICROBIOLOGY ANALYSIS REVIEWED BY: Kory Rodenhiser, Analyst

WATER ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Aug 30, 2012

PAGES (INCLUDING COVER): 13

VERSION*: 1

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

***NOTES**

VERSION 1: *MPN Analysis removed from sample KL-4 due to lab error.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

ATTENTION TO: Derek Heath

Total Coliforms and E.coli (MPN)						
DATE SAMPLED: Aug 14, 2012			DATE RECEIVED: Aug 14, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	KL-1	KL-2	KL-3
E. Coli (MPN)	MPN/100 mL	1	3610057	11	7	<1
Total Coliforms (MPN)	MPN/100 mL	1	>2420	1986	1553	613

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

11 Morris Drive, Unit 122
Dartmouth, Nova Scotia
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Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Chlorophyll A - Subcontracted						
DATE RECEIVED: Aug 14, 2012			DATE REPORTED: Aug 30, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	KL-1	KL-2	KL-3
Chlorophyll A - Acidification Method	ug/L	0.5	3610057	2.3	3610074	2.2
Chlorophyll A - Welschmeyer Method	ug/L	0.5		2.3		2.2

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
3610057-3610099 Subcontracted

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Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

ATTENTION TO: Derek Heath

Standard Water Analysis + Metals (Total)

DATE SAMPLED: Aug 14, 2012				DATE RECEIVED: Aug 14, 2012				DATE REPORTED: Aug 30, 2012				SAMPLE TYPE: Water	
Parameter	Unit	G / S	RDL	KL-1	KL-2	KL-3	KL-4	KL-5	KL-6	KL-7	KL-8	KL-9	KL-10
pH				7.2	6.7	7.1	7.0	7.1	7.0	7.2	2.0	2.2	2.0
Reactive Silica as SiO ₂	mg/L	0.5		1.3	4.0	2.0							
Chloride	mg/L	1		70	20	57	57	57					
Fluoride	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Sulphate	mg/L	2		9	3	8	8	8					
Alkalinity	mg/L	5		7	<5	6	8	8					
True Color	TCU	5		11	60	15	11	11					
Turbidity	NTU	0.1		0.8	1.1	0.7	0.4	0.4					
Electrical Conductivity	umho/cm	1		274	91	222	224	224					
Nitrate + Nitrite as N	mg/L	0.05		0.09	0.08	0.09	0.11	0.11					
Nitrate as N	mg/L	0.05		0.09	0.08	0.09	0.11	0.11					
Nitrite as N	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05					
Ammonia as N	mg/L	0.03		0.03	<0.03	0.04	0.04	0.04					
Total Organic Carbon	mg/L	0.5		2.9	7.1	3.4	3.2	3.2					
Ortho-Phosphate as P	mg/L	0.01		<0.01	0.09	<0.01	<0.01	<0.01					
Total Sodium	mg/L	0.1		42.0	14.2	34.5	34.5	34.5					
Total Potassium	mg/L	0.1		0.9	0.7	0.9	1.0	1.0					
Total Calcium	mg/L	0.1		8.4	3.6	6.9	6.8	6.8					
Total Magnesium	mg/L	0.1		1.5	1.0	1.2	1.2	1.2					
Total Phosphorous	mg/L	0.02		0.05	0.05	0.05	0.05	0.05					
Bicarb. Alkalinity (as CaCO ₃)	mg/L	5		7	<5	6	8	8					
Carb. Alkalinity (as CaCO ₃)	mg/L	10		<10	<10	<10	<10	<10					
Hydroxide	mg/L	5		<5	<5	<5	<5	<5					
Calculated TDS	mg/L	1		137	44	113	114	114					
Hardness	mg/L			27.2	13.1	22.2	21.9	21.9					
Langelier Index (@20C)	NA			-2.63	-3.60	-2.88	-2.86	-2.86					
Langelier Index (@ 4C)	NA			-2.95	-3.92	-3.20	-3.18	-3.18					
Saturation pH (@ 20C)	NA			9.83	10.3	9.98	9.86	9.86					
Saturation pH (@ 4C)	NA			10.2	10.6	10.3	10.2	10.2					
Anion Sum	meL	2.31		0.63	1.90	1.94	1.97	1.95					
Cation sum	meL	2.41		0.94	1.98	2.1	0.8	2.6					
% Difference/ Ion Balance (NS)	%	2.1		19.7	2.1	0.8	4.8	52					
Total Aluminum	ug/L	5		43	205	54	48	52					

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Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Standard Water Analysis + Metals (Total)						
DATE SAMPLED: Aug 14, 2012			DATE RECEIVED: Aug 14, 2012			SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	KL-1 3610057	KL-2 3610074	KL-3 3610082
Total Antimony	ug/L	2	<2	<2	<2	<2
Total Arsenic	ug/L	2	<2	<2	<2	<2
Total Barium	ug/L	5	15	11	17	16
Total Beryllium	ug/L	2	<2	<2	<2	<2
Total Bismuth	ug/L	2	<2	<2	<2	<2
Total Boron	ug/L	5	11	14	9	9
Total Cadmium	ug/L	0.017	0.027	<0.017	0.021	<0.017
Total Chromium	ug/L	1	<1	<1	<1	<1
Total Cobalt	ug/L	1	<1	<1	<1	<1
Total Copper	ug/L	2	<2	<2	<2	<2
Total Iron	ug/L	50	137	541	136	118
Total Lead	ug/L	0.5	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L	2	65	90	47	34
Total Molybdenum	ug/L	2	<2	<2	<2	<2
Total Nickel	ug/L	2	<2	<2	<2	<2
Total Selenium	ug/L	1	<1	<1	<1	<1
Total Silver	ug/L	0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5	41	18	33	32
Total Thallium	ug/L	0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2	<2	<2	<2	<2
Total Titanium	ug/L	2	<2	2	<2	<2
Total Uranium	ug/L	0.1	<0.1	<0.1	<0.1	<0.1
Total Vanadium	ug/L	2	<2	<2	<2	<2
Total Zinc	ug/L	5	<5	<5	<5	<5

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

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AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

TP (Water)					
DATE RECEIVED: Aug 14, 2012			DATE REPORTED: Aug 30, 2012		
Parameter	Unit	G / S	KL-1 RDL 3610057	KL-2 3610074	KL-3 3610082
Total Phosphorus	mg/L	0.006	0.043	0.059	0.045

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

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AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X630344
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

ATTENTION TO: Derek Heath

TSS, TKN

DATE SAMPLED: Aug 14, 2012				DATE RECEIVED: Aug 14, 2012				DATE REPORTED: Aug 30, 2012				SAMPLE TYPE: Water	
Parameter	Unit	G / S	RDL	KL-1	KL-2	KL-3	KL-4	KL-5	KL-5	KL-5	KL-5		
Total Suspended Solids	mg/L	5	<5	3610057	3610074	3610082	3610092	<5	<5	<5	<5		
Total Kjeldahl Nitrogen as N	mg/L	0.4	3.1	2.2	2.8	2.8	<0.4	2.3	2.3	2.3	2.3		

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

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CANADA B3B 1M2
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Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

Microbiology Analysis

RPT Date: Aug 30, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE					
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Coliforms and E.coli (MPN)																
E. Coli (MPN)	1	3610074	3	7	80.0%	< 1		0%	0%		0%	0%		0%	0%	
Total Coliforms (MPN)	1	3610074	1986	1986	0.0%	< 1		0%	0%		0%	0%		0%	0%	

Original Signed

Certified By: _____



Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

Water Analysis																
RPT Date: Aug 30, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE				
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
							Lower	Upper	Lower		Upper	Lower		Upper		
Standard Water Analysis + Metals (Total)																
pH	1	3605720	8.2	8.2	0.0%	<	100%	80%	120%	80%	120%	80%	120%			
Reactive Silica as SiO2	1	3607931	5.4	5.4	0.0%	< 0.5	95%	80%	120%	80%	120%	100%	80% 120%			
Chloride	1	3610074	20	20	0.0%	< 1	103%	80%	120%	80%	120%	100%	80% 120%			
Fluoride	1	3610074	<0.1	<0.1	0.0%	< 0.1	104%	80%	120%	80%	120%	100%	80% 120%			
Sulphate	1	3610074	3	3	0.0%	< 2	111%	80%	120%	80%	120%	101%	80% 120%			
Alkalinity	1	3605720	116	117	0.9%	< 5	101%	80%	120%	80%	120%	104%	80% 120%			
True Color	1	3612056	34	32	6.1%	< 5	100%	80%	120%	80%	120%	80%	120%			
Turbidity	1	3615603	7.8	7.8	0.0%	< 0.1	102%	80%	120%	80%	120%	80%	120%			
Electrical Conductivity	1	3605720	250	247	1.2%	< 1	97%	80%	120%	80%	120%	80%	120%			
Nitrate as N	1	3610074	0.08	0.08	0.0%	< 0.05	103%	80%	120%	80%	120%	95%	80% 120%			
Nitrite as N	1	3610074	<0.05	<0.05	0.0%	< 0.05	106%	80%	120%	80%	120%	98%	80% 120%			
Ammonia as N	1	3607760	<0.05	<0.05	0.0%	< 0.03	105%	80%	120%	80%	120%	104%	80% 120%			
Total Organic Carbon	1	3607842	< 0.5	< 0.5	0.0%	< 0.5	100%	80%	120%	80%	120%	87%	80% 120%			
Ortho-Phosphate as P	1	3607931	<0.01	<0.01	0.0%	< 0.01	101%	80%	120%	80%	120%	102%	80% 120%			
Total Sodium	81520	3607760	14.3	15.4	7.4%	< 0.1	105%	80%	120%	106%	80%	120%	92% 70% 130%			
Total Potassium	81520	3607760	1.2	1.2	0.0%	< 0.1	109%	80%	120%	107%	80%	120%	92% 70% 130%			
Total Calcium	81520	3607760	28.6	30.2	5.4%	< 0.1	109%	80%	120%	111%	80%	120%	96% 70% 130%			
Total Magnesium	81520	3607760	3.7	3.8	2.7%	< 0.1	108%	80%	120%	107%	80%	120%	93% 80% 120%			
Total Phosphorous	81520	3607760	0.03	0.03	0.0%	< 0.02	108%	80%	120%	110%	80%	120%	92% 70% 130%			
Bicarb. Alkalinity (as CaCO3)	1	3605720	116	117	0.9%	< 5	80%	120%	80%	120%	80%	120%	80% 120%			
Carb. Alkalinity (as CaCO3)	1	3605720	< 10	< 10	0.0%	< 10	80%	120%	80%	120%	80%	120%	80% 120%			
Hydroxide	1	3605720	< 5	< 5	0.0%	< 5	80%	120%	80%	120%	80%	120%	80% 120%			
Total Aluminum	81520	3607760	24	26	8.0%	< 5	108%	80%	120%	110%	80%	120%	97% 70% 130%			
Total Antimony	81520	3607760	< 2	< 2	0.0%	< 2	102%	80%	120%	105%	80%	120%	103% 70% 130%			
Total Arsenic	81520	3607760	< 2	< 2	0.0%	< 2	97%	80%	120%	95%	80%	120%	100% 70% 130%			
Total Barium	81520	3607760	6	7	15.4%	< 5	98%	80%	120%	99%	80%	120%	100% 70% 130%			
Total Beryllium	81520	3607760	< 2	< 2	0.0%	< 2	101%	80%	120%	99%	80%	120%	104% 70% 130%			
Total Bismuth	81520	3607760	< 2	< 2	0.0%	< 2	112%	80%	120%	87%	80%	120%	106% 70% 130%			
Total Boron	81520	3607760	6	6	0.0%	< 5	100%	80%	120%	94%	80%	120%	101% 70% 130%			
Total Cadmium	81520	3607760	0.020	0.019	5.1%	< 0.017	98%	80%	120%	99%	80%	120%	100% 70% 130%			
Total Chromium	81520	3607760	1	1	0.0%	< 1	109%	80%	120%	110%	80%	120%	95% 70% 130%			
Total Cobalt	81520	3607760	< 1	< 1	0.0%	< 1	111%	80%	120%	111%	80%	120%	92% 70% 130%			
Total Copper	81520	3607760	127	134	5.4%	< 2	111%	80%	120%	109%	80%	120%	94% 70% 130%			
Total Iron	81520	3607760	65	75	14.3%	< 50	108%	80%	120%	111%	80%	120%	96% 70% 130%			
Total Lead	81520	3607760	1.98	2.37	17.9%	< 0.5	105%	80%	120%	102%	80%	120%	105% 70% 130%			
Total Manganese	81520	3607760	< 2	< 2	0.0%	< 2	110%	80%	120%	111%	80%	120%	93% 70% 130%			
Total Molybdenum	81520	3607760	< 2	< 2	0.0%	< 2	100%	80%	120%	89%	80%	120%	102% 70% 130%			
Total Nickel	81520	3607760	2	2	0.0%	< 2	111%	80%	120%	111%	80%	120%	91% 70% 130%			
Total Selenium	81520	3607760	< 1	< 1	0.0%	< 1	101%	80%	120%	87%	80%	120%	84% 70% 130%			



Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

Water Analysis (Continued)																
RPT Date: Aug 30, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
							Lower	Upper	Lower	Upper	Lower	Upper				
Total Silver	81520	3607760	< 0.1	< 0.1	0.0%	< 0.1	99%	80%	120%	96%	80%	120%	101%	70%	130%	
Total Strontium	81520	3607760	111	116	4.4%	< 5	99%	80%	120%	99%	80%	120%	98%	70%	130%	
Total Thallium	81520	3607760	< 0.1	< 0.1	0.0%	< 0.1	104%	80%	120%	103%	80%	120%	103%	70%	130%	
Total Tin	81520	3607760	< 2	< 2	0.0%	< 2	95%	80%	120%	100%	80%	120%	103%	70%	130%	
Total Titanium	81520	3607760	< 2	< 2	0.0%	< 2	109%	80%	120%	109%	80%	120%	99%	70%	130%	
Total Uranium	81520	3607760	4.9	5.1	4.0%	< 0.1	103%	80%	120%	103%	80%	120%	113%	70%	130%	
Total Vanadium	81520	3607760	< 2	< 2	0.0%	< 2	109%	80%	120%	108%	80%	120%	94%	70%	130%	
Total Zinc	81520	3607760	20	21	4.9%	< 5	105%	80%	120%	110%	80%	120%	90%	70%	130%	
TSS, TKN																
Total Suspended Solids	1	6310057	<5	<5	0.0%	< 5	101%	80%	120%		120%	120%	101%	80%	120%	
Total Kjeldahl Nitrogen as N	1	3597841	1.6	1.9	17.1%	< 0.4	113%	80%	120%		80%	120%	82%	80%	120%	
TP (Water)																
Total Phosphorus	1		0.060	0.059	1.7%	< 0.006	92%	90%	110%	104%	90%	110%	92%	80%	120%	

Original Signed

Certified By:



Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR
Total Coliforms (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR

Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Chlorophyll A - Acidification Method	Subcontracted	Subcontracted	
Chlorophyll A - Welschmeyer Method	Subcontracted	Subcontracted	ICP-MS
pH	INOR-121-6001	SM 4500 H+B	PC-TITRATE
Reactive Silica as SiO2	INORG-121-6028	SM 4110 B	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	IC
Fluoride	INORG-121-6005	SM 4110 B	IC
Sulphate	INORG-121-6005	SM 4110 B	IC
Alkalinity	INORG-121-6001	SM 2320 B	PC-TITRATE
True Color	INORG-121-6014	EPA 110.2	NEPHELOMETER
Turbidity	INORG-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC-TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	IC
Nitrite as N	INORG-121-6005	SM 4110 B	IC
Ammonia as N	INORG-121-6003	SM 4500-NH3 G	COLORIMETER
Total Organic Carbon	INORG-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INORG-121-6005	SM 4110 B	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Potassium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Calcium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Magnesium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorous	MET-121-6104 & MET-121-6105	SM 3125	ICP/MS
Bicarb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC-TITRATE
Carb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC-TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340B	CALCULATION
Langelier Index (@20C)			CALCULATION
Langelier Index (@ 4C)			CALCULATION
Saturation pH (@ 20C)			CALCULATION
Saturation pH (@ 4C)			CALCULATION
Anion Sum		SM 1030E	CALCULATION
Cation sum		SM 1030E	CALCULATION
% Difference/ Ion Balance (NS)		SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Arsenic	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Barium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Beryllium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Bismuth	MET121-6104 & MET-121-6105	SM 3125	ICP/MS

Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X630344

ATTENTION TO: Derek Heath

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Boron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cadmium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Chromium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Cobalt	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Copper	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Iron	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Lead	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Manganese	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Molybdenum	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Nickel	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Selenium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Silver	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Strontium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Thallium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Tin	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Titanium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Uranium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Vanadium	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Zinc	MET121-6104 & MET-121-6105	SM 3125	ICP/MS
Total Phosphorus	INOR-93-1022	SM 4500-P B & E	SPECTROPHOTOMETER
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC
Total Kjeldahl Nitrogen as N	INOR-121-6020	SM 4500 NORG D	COLORIMETER

CLIENT NAME: SNC-LAVALIN
5657 SPRING GARDEN RD, SUITE 200
HALIFAX , NS B3J3R4
(902) 492-4544

ATTENTION TO: Derek Heath

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X631574

MICROBIOLOGY ANALYSIS REVIEWED BY: Kory Rodenhiser, Analyst

DATE REPORTED: Aug 25, 2012

PAGES (INCLUDING COVER): 4

VERSION*: 1

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

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12X631574
PROJECT NO: 510192-0001

CLIENT NAME: SNC-LAVALIN

Total Coliforms and E.coli (MPN)					
DATE SAMPLED: Aug 16, 2012		DATE RECEIVED: Aug 16, 2012		DATE REPORTED: Aug 25, 2012	SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	KL4	
E. Coli (MPN)	MPN/100 mL	1	<1	3619266	
Total Coliforms (MPN)	MPN/100 mL	1	>2420		

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

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

Original Signed

Certified By:

Quality Assurance

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X631574

ATTENTION TO: Derek Heath

Microbiology Analysis

RPT Date: Aug 25, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE		MATRIX SPIKE					
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Coliforms and E.coli (MPN)																
E. Coli (MPN)	1	3619266	< 1	< 1	0.0%	< 1		0%	0%		0%	0%		0%	0%	
Total Coliforms (MPN)	1	3619266	>2420	1986		< 1		0%	0%		0%	0%		0%	0%	

Original Signed

Certified By: _____



Method Summary

CLIENT NAME: SNC-LAVALIN

PROJECT NO: 510192-0001

AGAT WORK ORDER: 12X631574

ATTENTION TO: Derek Heath

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
E. Coli (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR
Total Coliforms (MPN)	MIC-121-7000	Based on SM 9223B	INCUBATOR



Chain of Custody Record

Report To	Invoice To	
Company: <u>SNC Lavalin</u>	Contact: <u>Derek Hecht</u>	Same: Yes <input type="checkbox"/> / No <input type="checkbox"/>
Address: <u>6657 Spring Garden Rd Suite 200</u>	Phone: <u>411 4544</u>	Company: _____
Phone: <u>492 4540</u>	PO#:	Contact: _____
	AGAT Quotation: _____	Address: _____
	Client Project Name/#: _____	Email: _____
		Phone: _____
		Fax: _____
		PO#/Credit Card #: _____

Report Information		Turnaround Time Required (TAT)		Test Results											
1. Name: <u>Derek Heath</u> Email: <u>Derek.Heath@SaskTel.ca</u>		Regular TAT <input checked="" type="checkbox"/> 5 to 7 working days Rush TAT <input type="checkbox"/> 1 day <input type="checkbox"/> 2 days <input type="checkbox"/> 3 - 4 days		Date Required: <u>July 2012</u>											
Report Format <input type="checkbox"/> Single Sample per page <input type="checkbox"/> Multiple Samples per page <input checked="" type="checkbox"/> Excel Format Included				TPH/BTEX <input type="checkbox"/> BTEX Fractionation <input type="checkbox"/> BTEX (PRI) <input type="checkbox"/>											
				ms + E.Coli (Presence/Absence) <input type="checkbox"/> TDS <input type="checkbox"/> VS <input type="checkbox"/> VSS <input type="checkbox"/>											
				CBOD <input type="checkbox"/> Total Diss <input type="checkbox"/> Available <input type="checkbox"/> Meter Analysis + MS <input type="checkbox"/> ed/Preserved <input type="checkbox"/>											
				Coarse <input type="checkbox"/> Fine <input type="checkbox"/> Pot <input type="checkbox"/> N/Pot <input type="checkbox"/> Res <input type="checkbox"/> Com <input type="checkbox"/> Lube <input type="checkbox"/> Tier 1 <input type="checkbox"/> Tier 2 <input type="checkbox"/> Gas <input type="checkbox"/> PIRI <input type="checkbox"/> CCME <input type="checkbox"/> CDWQ <input type="checkbox"/> NSDFOSP <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Res/Park <input type="checkbox"/> Agricultural <input type="checkbox"/> FWAL <input type="checkbox"/> Sediment <input type="checkbox"/> Other _____											
				Storm Water <input type="checkbox"/> Waste Water <input type="checkbox"/>											
				Form (MF) <input type="checkbox"/> m/s + E.Coli (Presence/Absence) <input type="checkbox"/>											