

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for
 Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:			321133-1	321133-2	321133-3
Client Sample ID:			17/19/08016	17/19/08017	17/19/08018
Date Sampled:			10-Jul-19	10-Jul-19	10-Jul-19
Analytes	Units	RL			
Sodium	mg/L	0.05	15.0	14.1	15.3
Potassium	mg/L	0.02	1.03	0.98	0.97
Calcium	mg/L	0.05	8.37	8.07	8.73
Magnesium	mg/L	0.01	2.67	2.60	2.64
Alkalinity (as CaCO ₃)	mg/L	2	25	24	25
Chloride	mg/L	0.5	25.4	25.8	28.0
Fluoride	mg/L	0.05	0.11	0.10	0.10
Sulfate	mg/L	1	6	6	7
Bromine	mg/L	0.01	0.09	0.08	0.09
Ammonia (as N)	mg/L	0.05	< 0.05	< 0.05	0.07
Un-ionized @ 20°C	mg/L	-	< 0.001	< 0.001	0.001
Nitrate + Nitrite (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrite (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrogen - Total	mg/L	0.2	0.3	0.3	0.3
Phosphorus - Total	mg/L	0.002	0.022	0.027	0.018
Carbon - Total Organic	mg/L	0.5	5.7	5.7	5.7
Colour	TCU	5	28	29	27
Conductivity	µS/cm	1	154	152	160
pH	units	-	7.6	7.6	7.6
Turbidity	NTU	0.1	1.0	1.5	0.8
Calculated Parameters					
Bicarbonate (as CaCO ₃)	mg/L	-	24.9	23.9	24.9
Carbonate (as CaCO ₃)	mg/L	-	0.093	0.089	0.093
Hardness (as CaCO ₃)	mg/L	0.2	31.9	30.9	32.7
TDS (calc)	mg/L	-	80	78	84
Saturation pH (20°C)	units	-	9.0	9.0	9.0
Langelier Index (20°C)	-	-	-1.41	-1.44	-1.39

This report relates only to the sample(s) and information provided to the laboratory.

RL = Reporting Limit

Ross Kean

Brannen Burhoe

Ross Kean
 Department Head
 Inorganic Analytical Chemistry

SURFACE WATER CHEM
 Page 1 of 7

Brannen Burhoe
 Chemical Technician
 Inorganic Analytical Services

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for
 Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:		321133-4	321133-5	321133-6	
Client Sample ID:		17/19/08019	17/19/08020	17/19/08021	
Date Sampled:		10-Jul-19	10-Jul-19	10-Jul-19	
Analytes	Units	RL			
Sodium	mg/L	0.05	14.7	13.4	13.3
Potassium	mg/L	0.02	0.94	0.89	0.88
Calcium	mg/L	0.05	8.98	9.35	9.44
Magnesium	mg/L	0.01	2.59	2.46	2.46
Alkalinity (as CaCO ₃)	mg/L	2	26	26	24
Chloride	mg/L	0.5	27.6	23.6	23.4
Fluoride	mg/L	0.05	0.12	0.12	0.11
Sulfate	mg/L	1	7	7	7
Bromine	mg/L	0.01	0.08	0.07	0.07
Ammonia (as N)	mg/L	0.05	0.08	0.05	0.06
Un-ionized @ 20°C	mg/L	-	0.001	< 0.001	< 0.001
Nitrate + Nitrite (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrite (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrate (as N)	mg/L	0.05	< 0.05	< 0.05	< 0.05
Nitrogen - Total	mg/L	0.2	0.3	0.3	0.3
Phosphorus - Total	mg/L	0.002	0.017	0.019	0.017
Carbon - Total Organic	mg/L	0.5	5.6	5.7	6.0
Colour	TCU	5	26	27	28
Conductivity	µS/cm	1	157	149	148
pH	units	-	7.6	7.6	7.6
Turbidity	NTU	0.1	0.9	1.0	0.6
Calculated Parameters					
Bicarbonate (as CaCO ₃)	mg/L	-	25.9	25.9	23.9
Carbonate (as CaCO ₃)	mg/L	-	0.097	0.097	0.089
Hardness (as CaCO ₃)	mg/L	0.2	33.1	33.5	33.7
TDS (calc)	mg/L	-	84	79	77
Saturation pH (20°C)	units	-	9.0	8.9	9.0
Langelier Index (20°C)	-	-	-1.37	-1.35	-1.38

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for

Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:		321133-7	321133-8
Client Sample ID:		17/19/08022	17/19/08023
Date Sampled:		10-Jul-19	10-Jul-19
Analytes	Units	RL	
Sodium	mg/L	0.05	13.2
Potassium	mg/L	0.02	0.87
Calcium	mg/L	0.05	9.41
Magnesium	mg/L	0.01	2.43
Alkalinity (as CaCO ₃)	mg/L	2	27
Chloride	mg/L	0.5	23.6
Fluoride	mg/L	0.05	0.14
Sulfate	mg/L	1	7
Bromine	mg/L	0.01	0.07
Ammonia (as N)	mg/L	0.05	0.06
Un-ionized @ 20°C	mg/L	-	< 0.001
Nitrate + Nitrite (as N)	mg/L	0.05	< 0.05
Nitrite (as N)	mg/L	0.05	< 0.05
Nitrate (as N)	mg/L	0.05	< 0.05
Nitrogen - Total	mg/L	0.2	0.3
Phosphorus - Total	mg/L	0.002	0.014
Carbon - Total Organic	mg/L	0.5	6.0
Colour	TCU	5	30
Conductivity	µS/cm	1	149
pH	units	-	7.6
Turbidity	NTU	0.1	0.6
Calculated Parameters			
Bicarbonate (as CaCO ₃)	mg/L	-	26.9
Carbonate (as CaCO ₃)	mg/L	-	0.101
Hardness (as CaCO ₃)	mg/L	0.2	33.5
TDS (calc)	mg/L	-	79
Saturation pH (20°C)	units	-	8.9
Langelier Index (20°C)	-	-	-1.33

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for

Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:			321133-1	321133-2	321133-3
Client Sample ID:			17/19/08016	17/19/08017	17/19/08018
Date Sampled:			10-Jul-19	10-Jul-19	10-Jul-19
Analytes	Units	RL			
Aluminum	mg/L	0.001	0.034	0.036	0.033
Antimony	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.001	< 0.001	0.001	< 0.001
Barium	mg/L	0.001	0.011	0.011	0.009
Beryllium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Bismuth	mg/L	0.001	< 0.001	< 0.001	< 0.001
Boron	mg/L	0.001	0.011	0.011	0.010
Cadmium	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001
Calcium	mg/L	0.05	8.37	8.07	8.73
Chromium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Copper	mg/L	0.001	0.002	0.001	< 0.001
Iron	mg/L	0.02	0.17	0.29	0.09
Lead	mg/L	0.0001	0.0001	0.0001	< 0.0001
Lithium	mg/L	0.0001	0.0006	0.0006	0.0006
Magnesium	mg/L	0.01	2.67	2.60	2.64
Manganese	mg/L	0.001	0.046	0.077	0.019
Molybdenum	mg/L	0.0001	0.0002	0.0002	0.0001
Nickel	mg/L	0.001	< 0.001	< 0.001	< 0.001
Potassium	mg/L	0.02	1.03	0.98	0.97
Rubidium	mg/L	0.0001	0.0009	0.0009	0.0007
Selenium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.05	15.0	14.1	15.3
Strontium	mg/L	0.001	0.060	0.057	0.065
Tellurium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Thallium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Tin	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Uranium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Vanadium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Zinc	mg/L	0.001	0.001	< 0.001	< 0.001

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for

Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:		321133-4	321133-5	321133-6	
Client Sample ID:		17/19/08019	17/19/08020	17/19/08021	
Date Sampled:		10-Jul-19	10-Jul-19	10-Jul-19	
Analytes	Units	RL			
Aluminum	mg/L	0.001	0.046	0.033	0.032
Antimony	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Arsenic	mg/L	0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L	0.001	0.009	0.009	0.009
Beryllium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Bismuth	mg/L	0.001	< 0.001	< 0.001	< 0.001
Boron	mg/L	0.001	0.010	0.009	0.009
Cadmium	mg/L	0.00001	< 0.00001	< 0.00001	< 0.00001
Calcium	mg/L	0.05	8.98	9.35	9.44
Chromium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Cobalt	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Copper	mg/L	0.001	< 0.001	< 0.001	< 0.001
Iron	mg/L	0.02	0.09	0.09	0.09
Lead	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Lithium	mg/L	0.0001	0.0006	0.0005	0.0005
Magnesium	mg/L	0.01	2.59	2.46	2.46
Manganese	mg/L	0.001	0.017	0.013	0.012
Molybdenum	mg/L	0.0001	0.0001	0.0001	0.0001
Nickel	mg/L	0.001	< 0.001	< 0.001	< 0.001
Potassium	mg/L	0.02	0.94	0.89	0.88
Rubidium	mg/L	0.0001	0.0007	0.0007	0.0007
Selenium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Sodium	mg/L	0.05	14.7	13.4	13.3
Strontium	mg/L	0.001	0.067	0.070	0.070
Tellurium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Thallium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Tin	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Uranium	mg/L	0.0001	< 0.0001	< 0.0001	< 0.0001
Vanadium	mg/L	0.001	< 0.001	< 0.001	< 0.001
Zinc	mg/L	0.001	< 0.001	< 0.001	< 0.001

Report ID: 321133-IAS
 Report Date: 19-Jul-19
 Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for

Belleisle Watershed Coalition
 PO box 856
 Hatfield Point, NB E5T 2S4



921 College Hill Rd
 Fredericton NB
 Canada E3B 6Z9
 Tel: 506.452.1212
 Fax: 506.452.0594
 www.rpc.ca

Attention: Roxanne MacKinnon

Project #: Not Available

Location: Belleisle Bay

Analysis of Surface Water

RPC Sample ID:		321133-7	321133-8
Client Sample ID:		17/19/08022	17/19/08023
Date Sampled:		10-Jul-19	10-Jul-19
Analytes	Units	RL	
Aluminum	mg/L	0.001	0.033
Antimony	mg/L	0.0001	< 0.0001
Arsenic	mg/L	0.001	< 0.001
Barium	mg/L	0.001	0.009
Beryllium	mg/L	0.0001	< 0.0001
Bismuth	mg/L	0.001	< 0.001
Boron	mg/L	0.001	0.009
Cadmium	mg/L	0.00001	< 0.00001
Calcium	mg/L	0.05	9.41
Chromium	mg/L	0.001	< 0.001
Cobalt	mg/L	0.0001	< 0.0001
Copper	mg/L	0.001	< 0.001
Iron	mg/L	0.02	0.09
Lead	mg/L	0.0001	< 0.0001
Lithium	mg/L	0.0001	0.0006
Magnesium	mg/L	0.01	2.43
Manganese	mg/L	0.001	0.013
Molybdenum	mg/L	0.0001	0.0001
Nickel	mg/L	0.001	< 0.001
Potassium	mg/L	0.02	0.87
Rubidium	mg/L	0.0001	0.0007
Selenium	mg/L	0.001	< 0.001
Silver	mg/L	0.0001	< 0.0001
Sodium	mg/L	0.05	13.2
Strontium	mg/L	0.001	0.070
Tellurium	mg/L	0.0001	< 0.0001
Thallium	mg/L	0.0001	< 0.0001
Tin	mg/L	0.0001	< 0.0001
Uranium	mg/L	0.0001	< 0.0001
Vanadium	mg/L	0.001	< 0.001
Zinc	mg/L	0.001	< 0.001

Report ID: 321133-IAS
Report Date: 19-Jul-19
Date Received: 11-Jul-19

CERTIFICATE OF ANALYSIS

for
Belleisle Watershed Coalition
PO box 856
Hatfield Point, NB E5T 2S4



921 College Hill Rd
Fredericton NB
Canada E3B 6Z9
Tel: 506.452.1212
Fax: 506.452.0594
www.rpc.ca

Methods

<u>Analyte</u>	<u>RPC SOP #</u>	<u>Method Reference</u>	<u>Method Principle</u>
Ammonia	4.M47	APHA 4500-NH ₃ G	Phenate Colourimetry
pH	4.M03	APHA 4500-H ⁺ B	pH Electrode - Electrometric
Alkalinity (as CaCO ₃)	4.M43	EPA 310.2	Methyl Orange Colourimetry
Chloride	4.M44	APHA 4500-CL E	Ferricyanide Colourimetry
Fluoride	4.M30	APHA 4500-F- D	SPADNS Colourimetry
Sulfate	4.M45	APHA 4500-SO ₄ E	Turbidimetry
Nitrate + Nitrite (as N)	4.M48	APHA 4500-NO ₃ H	Hydrazine Red., Derivatization, Colourimetry
Nitrite (as N)	4.M49	APHA 4500-NO ₂ - B	Ferrous Ammonium Sulfate Colourimetry
Nitrogen - Total	IAS-M57.01	ASTM D8083-16	Combustion/Chemiluminescence
Phosphorus - Total	4.M17	APHA 4500-P E	Digestion, Manual Colourimetry
Carbon - Total Organic	4.M38	APHA 5310 C	UV-Persulfate Digestion, NDIR Detection
Turbidity	4.M06	APHA 2130 B	Nephelometry
Colour	4.M55	APHA 2120 Color (A,C)	Single Wavelength Spectrophotometry
Conductivity	4.M04	APHA 2510 B	Conductivity Meter - Electrode
Trace Metals	4.M01/4.M29	EPA 200.8/EPA 200.7	ICP-MS/ICP-ES