



**CLIENT NAME: REGION OF QUEENS MUNICIPALITY  
345 ROY TURNER ROAD  
LIVERPOOL, NS B0T1K0  
(902) 354-3455**

**ATTENTION TO: ADAM GRANT  
PROJECT:**

**AGAT WORK ORDER: 25X384608**

**WATER ANALYSIS REVIEWED BY: Kaliegh Cullen, Report Writer**

**DATE REPORTED: Dec 22, 2025**

**PAGES (INCLUDING COVER): 10**

**VERSION\*: 1**

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

**\*Notes**

**Disclaimer:**

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.
- This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, CCN and NELAP.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



## Certificate of Analysis

AGAT WORK ORDER: 25X384608

PROJECT:

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

CLIENT NAME: REGION OF QUEENS MUNICIPALITY

ATTENTION TO: ADAM GRANT

SAMPLING SITE:

SAMPLED BY:

### Standard Water Analysis + Total Metals

DATE RECEIVED: 2025-12-15

DATE REPORTED: 2025-12-22

Parameter	Unit	G / S	RDL	COWIE	COWIE
				WELL-UNTREATED	WELL-TREATED
				Water	Water
				2025-12-11 09:00	2025-12-10 14:00
				7344828	7344831
pH	pH Units	7.0-10.5		5.85	5.93
Reactive Silica as SiO2	mg/L		0.5	17.2	17.4
Chloride	mg/L	250 AO	1	64	75
Fluoride	mg/L	1.5	0.12	<0.12	<0.12
Sulphate	mg/L	500 AO	2	7	8
Alkalinity	mg/L		5	76	80
True Color	TCU	15 AO	5	<5	6
Turbidity	NTU	1.0	0.5	6.1	0.6
Electrical Conductivity	umho/cm		1	373	414
Nitrate + Nitrite as N	mg/L		0.05	0.60	0.65
Nitrate as N	mg/L	10	0.05	0.35	0.37
Nitrite as N	mg/L	1.0	0.05	0.25	0.28
Ammonia as N	mg/L		0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.50	<0.50	<0.50
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01
Total Sodium	mg/L	200 AO	0.1	43.5	49.6
Total Potassium	mg/L		0.1	2.0	2.1
Total Calcium	mg/L		0.1	23.1	25.6
Total Magnesium	mg/L		0.1	5.0	5.5
Bicarb. Alkalinity (as CaCO3)	mg/L		5	76	80
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10
Hydroxide	mg/L		5	<5	<5
Calculated TDS	mg/L		1	193	217
Hardness	mg/L			78.3	86.6
Langelier Index (@20C)	NA			-2.52	-2.38
Langelier Index (@ 4C)	NA			-2.84	-2.70
Saturation pH (@ 20C)	NA			8.37	8.31

Certified By:

*Kaleigh Cullen*



## Certificate of Analysis

AGAT WORK ORDER: 25X384608

PROJECT:

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

CLIENT NAME: REGION OF QUEENS MUNICIPALITY

ATTENTION TO: ADAM GRANT

SAMPLING SITE:

SAMPLED BY:

### Standard Water Analysis + Total Metals

DATE RECEIVED: 2025-12-15

DATE REPORTED: 2025-12-22

Parameter	Unit	SAMPLE DESCRIPTION:		COWIE	COWIE
		G / S	RDL	WELL-UNTREATED	WELL-TREATED
				Water	Water
				2025-12-11 09:00	2025-12-10 14:00
				7344828	7344831
Saturation pH (@ 4C)	NA			8.69	8.63
Anion Sum	me/L			3.51	3.93
Cation sum	me/L			3.52	3.95
% Difference/ Ion Balance	%			0	0.2
Total Aluminum	ug/L	2900, 100	5	26	13
Total Antimony	ug/L	6	2	<2	<2
Total Arsenic	ug/L	10	2	<2	<2
Total Barium	ug/L	2000	5	<5	<5
Total Beryllium	ug/L		2	<2	<2
Total Bismuth	ug/L		2	<2	<2
Total Boron	ug/L	5000	50	<50	52
Total Cadmium	ug/L	7	0.09	<0.09	<0.09
Total Chromium	ug/L	50	1	<1	<1
Total Cobalt	ug/L		1	<1	<1
Total Copper	ug/L	2000, 1000	1	13	53
Total Iron	ug/L	100 AO	50	121	<50
Total Lead	ug/L	5	0.5	0.5	<0.5
Total Manganese	ug/L	120, 20 AO	2	<2	<2
Total Molybdenum	ug/L		2	<2	<2
Total Nickel	ug/L		2	<2	<2
Total Phosphorous	mg/L		0.02	3.19	3.46
Total Selenium	ug/L	50	1	<1	<1
Total Silver	ug/L		0.1	<0.1	<0.1
Total Strontium	ug/L	7000	5	86	95
Total Thallium	ug/L		0.1	<0.1	<0.1
Total Tin	ug/L		2	<2	<2
Total Titanium	ug/L		2	<2	<2

**Certified By:**

*Kaleigh Cullen*



## Certificate of Analysis

AGAT WORK ORDER: 25X384608

PROJECT:

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

CLIENT NAME: REGION OF QUEENS MUNICIPALITY

ATTENTION TO: ADAM GRANT

SAMPLING SITE:

SAMPLED BY:

### Standard Water Analysis + Total Metals

DATE RECEIVED: 2025-12-15

DATE REPORTED: 2025-12-22

Parameter	Unit	G / S	RDL	COWIE	COWIE
				WELL-UNTREATED	WELL-TREATED
SAMPLE DESCRIPTION:				Water	Water
SAMPLE TYPE:				Water	Water
DATE SAMPLED:				2025-12-11 09:00	2025-12-10 14:00
				<b>7344828</b>	<b>7344831</b>
Total Uranium	ug/L	20	0.2	0.5	0.5
Total Vanadium	ug/L		2	<2	<2
Total Zinc	ug/L	5000 AO	5	15	34

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Canadian Drinking Water Quality - updated 2025-04  
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

**7344828-7344831** % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.

pH has been analyzed past the recommended holding time of 15 minutes from sampling. Field measurement recommended for most accurate result

Analysis performed at AGAT Halifax (unless marked by \*)

**Certified By:**

*Kathleen Cullen*



**Exceedance Summary**

AGAT WORK ORDER: 25X384608

PROJECT:

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

CLIENT NAME: REGION OF QUEENS MUNICIPALITY

ATTENTION TO: ADAM GRANT

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
7344831	COWIE WELL-TREATED	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	pH	pH Units	7.0-10.5 OG	5.93

## Quality Assurance

**CLIENT NAME: REGION OF QUEENS MUNICIPALITY**
**AGAT WORK ORDER: 25X384608**
**PROJECT:**
**ATTENTION TO: ADAM GRANT**
**SAMPLING SITE:**
**SAMPLED BY:**

Water Analysis															
RPT Date: Dec 22, 2025			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 + Total Metals**

pH	7345258		5.15	5.14	0.2%	<	101%	80%	120%	NA			NA		
Reactive Silica as SiO2	7336065		5.3	5.2	1.0%	< 0.5	99%	80%	120%	106%	80%	120%	104%	80%	120%
Chloride	7344786		14	13	3.8%	< 1	91%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	7344786		<0.12	<0.12	NA	< 0.12	98%	80%	120%	NA	80%	120%	83%	70%	130%
Sulphate	7344786		4	4	NA	< 2	87%	80%	120%	NA	80%	120%	86%	70%	130%
Alkalinity	7345258		12	13	NA	< 5	115%	80%	120%	NA			NA		
True Color	7336065		11	11	NA	< 5	106%	80%	120%	105%	80%	120%	NA		
Turbidity	7336814	7336814	0.53	0.63	NA	< 0.5	93%	80%	120%				NA		
Electrical Conductivity	7345258		116	115	0.4%	< 1	99%	90%	110%	NA			NA		
Nitrate as N	7344786		0.25	0.25	NA	< 0.05	98%	80%	120%	NA	80%	120%	115%	70%	130%
Nitrite as N	7344786		0.25	0.31	19.6%	< 0.05	95%	80%	120%	NA	80%	120%	107%	70%	130%
Ammonia as N	7349347		<0.03	<0.03	NA	< 0.03	104%	80%	120%	97%	80%	120%	100%	70%	130%
Total Organic Carbon	7345487		1.6	1.6	NA	< 0.5	101%	80%	120%	NA	80%	120%	99%	80%	120%
Ortho-Phosphate as P	7336065		<0.01	<0.01	NA	< 0.01	89%	80%	120%	93%	80%	120%	94%	80%	120%
Total Sodium	7344839		4.9	5.1	3.7%	< 0.1	112%	70%	130%	109%	80%	120%	120%	70%	130%
Total Potassium	7344839		1.1	1.2	4.1%	< 0.1	114%	70%	130%	113%	80%	120%	117%	70%	130%
Total Calcium	7344839		0.7	0.8	18.0%	< 0.1	107%	70%	130%	106%	80%	120%	115%	70%	130%
Total Magnesium	7344839		0.7	0.7	1.2%	< 0.1	110%	80%	130%	107%	80%	120%	118%	70%	130%
Bicarb. Alkalinity (as CaCO3)	7345258		12	13	NA	< 5	NA	80%	120%	NA			NA		
Carb. Alkalinity (as CaCO3)	7345258		<10	<10	NA	< 10	NA	80%	120%	NA			NA		
Hydroxide	7345258		<5	<5	NA	< 5	NA	80%	120%	NA			NA		
Total Aluminum	7344839		253	252	0.6%	< 5	113%	70%	130%	108%	80%	120%	NA	70%	130%
Total Antimony	7344839		<2	<2	NA	< 2	102%	70%	130%	99%	80%	120%	109%	70%	130%
Total Arsenic	7344839		<2	<2	NA	< 2	107%	70%	130%	106%	80%	120%	114%	70%	130%
Total Barium	7344839		<5	<5	NA	< 5	102%	70%	130%	100%	80%	120%	109%	70%	130%
Total Beryllium	7344839		<2	<2	NA	< 2	119%	70%	130%	116%	80%	120%	126%	70%	130%
Total Bismuth	7344839		<2	<2	NA	< 2	109%	70%	130%	106%	80%	120%	114%	70%	130%
Total Boron	7344839		<50	<50	NA	< 50	118%	70%	130%	114%	80%	120%	127%	70%	130%
Total Cadmium	7344839		<0.09	<0.09	NA	< 0.09	104%	70%	130%	102%	80%	120%	110%	70%	130%
Total Chromium	7344839		<1	<1	NA	< 1	108%	70%	130%	108%	80%	120%	118%	70%	130%
Total Cobalt	7344839		<1	<1	NA	< 1	108%	70%	130%	106%	80%	120%	114%	70%	130%
Total Copper	7344839		<1	<1	NA	< 1	109%	70%	130%	107%	80%	120%	117%	70%	130%
Total Iron	7344839		273	276	0.9%	< 50	110%	70%	130%	106%	80%	120%	116%	70%	130%
Total Lead	7344839		<0.5	<0.5	NA	< 0.5	123%	70%	130%	108%	80%	120%	116%	70%	130%
Total Manganese	7344839		47	45	3.0%	< 2	109%	70%	130%	107%	80%	120%	116%	70%	130%
Total Molybdenum	7344839		<2	<2	NA	< 2	101%	70%	130%	98%	80%	120%	108%	70%	130%
Total Nickel	7344839		<2	<2	NA	< 2	108%	70%	130%	108%	80%	120%	117%	70%	130%
Total Phosphorous	7344839		0.53	0.50	4.9%	< 0.02	100%	70%	130%	116%	80%	120%	106%	70%	130%
Total Selenium	7344839		<1	<1	NA	< 1	100%	70%	130%	107%	80%	120%	102%	70%	130%

## Quality Assurance

**CLIENT NAME: REGION OF QUEENS MUNICIPALITY**
**AGAT WORK ORDER: 25X384608**
**PROJECT:**
**ATTENTION TO: ADAM GRANT**
**SAMPLING SITE:**
**SAMPLED BY:**

### Water Analysis (Continued)

RPT Date: Dec 22, 2025			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	7344839		<0.1	<0.1	NA	< 0.1	104%	70%	130%	104%	80%	120%	86%	70%	130%	
Total Strontium	7344839		9	9	NA	< 5	109%	70%	130%	106%	80%	120%	117%	70%	130%	
Total Thallium	7344839		<0.1	<0.1	NA	< 0.1	107%	70%	130%	106%	80%	120%	114%	70%	130%	
Total Tin	7344839		<2	<2	NA	< 2	103%	70%	130%	100%	80%	120%	111%	70%	130%	
Total Titanium	7344839		<2	<2	NA	< 2	106%	70%	130%	103%	80%	120%	116%	70%	130%	
Total Uranium	7344839		<0.2	<0.2	NA	< 0.2	105%	70%	130%	102%	80%	120%	110%	70%	130%	
Total Vanadium	7344839		<2	<2	NA	< 2	108%	70%	130%	105%	80%	120%	112%	70%	130%	
Total Zinc	7344839		8	8	NA	< 5	102%	70%	130%	102%	80%	120%	126%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

**Certified By:** 

## Method Summary

**CLIENT NAME: REGION OF QUEENS MUNICIPALITY**
**AGAT WORK ORDER: 25X384608**
**PROJECT:**
**ATTENTION TO: ADAM GRANT**
**SAMPLING SITE:**
**SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
<b>Water Analysis</b>			
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO <sub>2</sub>	INOR-121-6027	SM 4500-SiO <sub>2</sub> F	COLORIMETER
Chloride	INOR-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INOR-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	COLORIMETER
Turbidity	INOR-121-6001	SM 2130 B	PC TITRATE
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INOR-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INOR-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH <sub>3</sub> H	COLORIMETER
Total Organic Carbon	INOR-121-6052	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO <sub>3</sub> )	INOR-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO <sub>3</sub> )	INOR-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INOR-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

## Method Summary

**CLIENT NAME: REGION OF QUEENS MUNICIPALITY**
**AGAT WORK ORDER: 25X384608**
**PROJECT:**
**ATTENTION TO: ADAM GRANT**
**SAMPLING SITE:**
**SAMPLED BY:**

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

