AGAT Laboratories

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CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY
PO Box 100
Annapolis Royal, NS B0S1A0
(902) 532-3141
ATTENTION TO: James Jenner
PROJECT: Cornwallis Thm's, Haa's Copper, SWA
AGAT WORK ORDER: 22X917864
TRACE ORGANICS REVIEWED BY: Wendy Rose, Trace Organics Lab Technician
WATER ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Jul 19, 2022
PAGES (INCLUDING COVER): 16
VERSION*: 1

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

Notes

Disclaimer:

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Certificate of Analysis

AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Haloacetic Acids (water)

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		Treated Cwtp	Raw lake cady
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2022-07-05	2022-07-05
Parameter	**Unit**	**G / S**	**RDL**	**4065939**	**4065952**
Chloroacetic Acid	ug/L		0.5	0.7	<0.5
Bromoacetic Acid	ug/L		0.5	<0.5	<0.5
Dichloroacetic Acid	ug/L		0.5	16.5	<0.5
Trichloroacetic Acid	ug/L		0.5	14.4	<0.5
Bromochloroacetic Acid	ug/L		0.5	2.3	<0.5
Dibromoacetic Acid	ug/L		0.5	<0.5	<0.5
Total Haloacetic Acids	ug/L	80	4.0	33.9	<4.0
HAA5	ug/L	80	4.0	31.6	<4.0
Surrogate	**Unit**	**Acceptable Limits**			
2-Bromobutanoic acid	%	70-130		110	118

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

4065939-4065952 HAA5 is a calculated parameter. The calculated parameter is non-accredited. The component parameters of the calculation are accredited.

Analysis performed at AGAT Halifax (unless marked by *)

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AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Trihalomethanes in Water

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		Treated Cwtp	Raw lake cady
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2022-07-05	2022-07-05
Parameter	**Unit**	**G / S**	**RDL**	**4065939**	**4065952**
Chloroform	ug/L		1	46	<1
Bromodichloromethane	ug/L		1	7	<1
Dibromochloromethane	ug/L		1	<1	<1
Bromoform	ug/L		1	<1	<1
Total Trihalomethanes	ug/L	100	1	53	<1
Surrogate	**Unit**	**Acceptable Limits**			
Toluene-d8	%	60-140		98	98
4-Bromofluorobenzene	%	60-140		101	107

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

Analysis performed at AGAT Halifax (unless marked by *)

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AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Halifax - Metals - Copper (µg/L)

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		149 Topsail	406 Dingle	90 Hillside	108 Old School
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2022-07-06	2022-07-06	2022-07-06	2022-07-06
Parameter	Unit	G / S	RDL	4065920	4065922	4065923	4065924
Total Copper	ug/L	2000, 1000	1	4	2	17	3

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

4065920-4065924 < - Values refer to Report Detection Limits.

Analysis performed at AGAT Edmonton (unless marked by *)

Certified By: Lara Knox

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PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Halifax - Metals - Total (µg/L)

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		Treated Cwtp	Raw lake cady
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2022-07-05	2022-07-05
Parameter	Unit	G / S	RDL	4065939	4065952
Total Aluminum	ug/L	2900, 100	4	70	211
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	5	6	<5
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	<1	14
Total Iron	ug/L	300 AO	50	**650**	<50
Total Lead	ug/L	5	0.5	<0.5	0.8
Total Manganese	ug/L	120, 20 AO	3	**133**	87
Total Molybdenum	ug/L		2	<2	<2
Total Nickel	ug/L		2	<2	<2
Total Selenium	ug/L	50	1.0	<1.0	<1.0
Total Silver	ug/L		0.1	<0.1	<0.1
Total Strontium	ug/L	7000	5	10	10
Total Thallium	ug/L		0.2	<0.2	<0.2
Total Tin	ug/L		3	<3	<3
Total Titanium	ug/L		3	<3	<3
Total Uranium	ug/L	20	0.2	<0.2	<0.2
Total Vanadium	ug/L		2	<2	<2
Total Zinc	ug/L	5000 AO	5	83	<5
Total Phosphorus	ug/L		50	62	239

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PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Halifax - Metals - Total (µg/L)

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

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

4065939-4065952 < - Values refer to Report Detection Limits.

Analysis performed at AGAT Edmonton (unless marked by *)

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AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		Treated Cwtp	Raw lake cady
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2022-07-05	2022-07-05
Parameter	Unit	G / S	RDL	4065939	4065952
pH		7.0-10.5		7.96	**6.41**
Reactive Silica as SiO2	mg/L		0.5	15.4	8.5
Chloride	mg/L	250 AO	1	10	6
Fluoride	mg/L	1.5	0.12	<0.12	0.14
Sulphate	mg/L	500 AO	2	39	<2
Alkalinity	mg/L		5	55	6
True Color	TCU	15 AO	5.00	<5.00	<5.00
Turbidity	NTU	1.0	0.5	**2.3**	**4.2**
Electrical Conductivity	umho/cm		1	207	36
Nitrate + Nitrite as N	mg/L		0.05	0.08	<0.05
Nitrate as N	mg/L	10	0.05	0.08	<0.05
Nitrite as N	mg/L	1.0	0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	1.9	9.0
Ortho-Phosphate as P	mg/L		0.01	0.12	0.012
Total Sodium	mg/L	200 AO	1	43	4
Total Potassium	mg/L		0.1	0.4	0.4
Total Calcium	mg/L		0.8	1.6	1.4
Total Magnesium	mg/L		0.8	<0.8	<0.8
Bicarb. Alkalinity (as CaCO3)	mg/L		5	55	6
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10
Hydroxide	mg/L		5	<5	<5
Calculated TDS	mg/L	500 AO	1	128	16
Hardness	mg/L			4.0	3.5
Langelier Index (@20C)	NA			-1.69	-4.17
Langelier Index (@ 4C)	NA			-2.01	-4.49
Saturation pH (@ 20C)	NA			9.65	10.6
Saturation pH (@ 4C)	NA			9.97	10.9
Anion Sum	me/L			2.20	0.29
Cation sum	me/L			2.00	0.29

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AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-07-08

DATE REPORTED: 2022-07-19

		SAMPLE DESCRIPTION:		Treated Cwtp	Raw lake cady
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2022-07-05	2022-07-05
Parameter	Unit	G / S	RDL	4065939	4065952
% Difference/ Ion Balance	%			4.8	0.1

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

4065939-4065952 % 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.

Analysis performed at AGAT Halifax (unless marked by *)

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Exceedance Summary

AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

ATTENTION TO: James Jenner

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4065939	Treated Cwtp	NS-CDWQ incl [AO]	Halifax - Metals - Total (µg/L)	Total Iron	ug/L	300 AO	650
4065939	Treated Cwtp	NS-CDWQ incl [AO]	Halifax - Metals - Total (µg/L)	Total Manganese	ug/L	120, 20 AO	133
4065939	Treated Cwtp	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	Total Iron	ug/L	300 AO	650
4065939	Treated Cwtp	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	Total Manganese	ug/L	120, 20 AO	133
4065939	Treated Cwtp	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	Turbidity	NTU	1.0	2.3
4065952	Raw lake cady	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	Turbidity	NTU	1.0	4.2
4065952	Raw lake cady	NS-CDWQ incl [AO]	Standard Water Analysis + Total Metals	pH		7.0-10.5 OG	6.41

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Quality Assurance

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jul 19, 2022			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Trihalomethanes in Water															
Chloroform	1	4059710	2	2	NA	< 1	99%	50%	140%	88%	60%	130%	94%	50%	140%
Bromodichloromethane	1	4059710	< 1	< 1	NA	< 1	92%	50%	140%	81%	60%	130%	89%	50%	140%
Dibromochloromethane	1	4059710	< 1	< 1	NA	< 1	95%	50%	140%	87%	60%	130%	73%	50%	140%
Bromoform	1	4059710	< 1	< 1	NA	< 1	88%	50%	140%	80%	60%	130%	89%	50%	140%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution. Matrix spike performed on a different sample than the duplicate.
If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Haloacetic Acids (water)															
Chloroacetic Acid	1	4065939	0.7	0.7	NA	< 0.5	99%	70%	130%	74%	60%	130%	73%	60%	130%
Bromoacetic Acid	1	4065939	< 0.5	< 0.5	NA	< 0.5	96%	70%	130%	84%	60%	130%	92%	60%	130%
Dichloroacetic Acid	1	4065939	16.5	16.6	0.6%	< 0.5	94%	70%	130%	105%	60%	130%	113%	60%	130%
Trichloroacetic Acid	1	4065939	14.4	14.5	0.7%	< 0.5	87%	70%	130%	103%	60%	130%	113%	60%	130%
Bromochloroacetic Acid	1	4065939	2.3	2.3	NA	< 0.5	82%	70%	130%	102%	60%	130%	113%	60%	130%
Dibromoacetic Acid	1	4065939	< 0.5	< 0.5	NA	< 0.5	85%	70%	130%	120%	60%	130%	128%	60%	130%

Comments: If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.
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: WROSS

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Quality Assurance

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AGAT WORK ORDER: 22X917864
PROJECT: Cornwallis Thm's, Haa's Copper, SWA
ATTENTION TO: James Jenner
SAMPLING SITE:
SAMPLED BY:

Water Analysis

RPT Date: Jul 19, 2022

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
Standard Water Analysis + Total Metals															
pH		4073506	7.71	7.97	3.3%	<	100%	80%	120%						
Reactive Silica as SiO2	4068611		5.9	6.4	7.1%	< 0.5	103%	80%	120%	105%	80%	120%	110%	80%	120%
Chloride	4052126		11	11	2.5%	< 1	109%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	4052126		<0.12	<0.12	NA	< 0.12	107%	80%	120%	NA	80%	120%	109%	70%	130%
Sulphate	4052126		8	8	NA	< 2	104%	80%	120%	NA	80%	120%	88%	70%	130%
Alkalinity		4073506	54	53	1.9%	< 5	97%	80%	120%						
True Color	4068611		<5.00	<5.00	NA	< 5	83%	80%	120%	107%	80%	120%	NA		
Turbidity	4076312		10.0	11.6	15.3%	< 0.5	100%	80%	120%	NA			NA		
Electrical Conductivity		4073506	141	137	2.9%	< 1	103%	90%	110%						
Nitrate as N	4052126		2.43	2.46	1.4%	< 0.05	116%	80%	120%	NA	80%	120%	NA	70%	130%
Nitrite as N	4052126		<0.05	<0.05	NA	< 0.05	92%	80%	120%	NA	80%	120%	113%	70%	130%
Ammonia as N	4062196		<0.03	<0.03	NA	< 0.03	100%	80%	120%	85%	80%	120%	96%	70%	130%
Total Organic Carbon	4068605		2.9	2.9	1.3%	< 0.5	100%	80%	120%	NA	80%	120%	98%	80%	120%
Ortho-Phosphate as P			0.02	0.02	NA	< 0.01	83%	80%	120%		80%	120%		80%	120%
Total Sodium	4106494		65	66	1.9%	< 0.1	103%	80%	120%	108%	80%	120%	NA	70%	130%
Total Potassium	4106494		<0.1	<0.1	NA	< 0.1	102%	80%	120%	106%	80%	120%	107%	70%	130%
Total Calcium	4106494		<0.1	<0.1	NA	< 0.1	102%	80%	120%	102%	80%	120%	103%	70%	130%
Total Magnesium	4106494		<0.1	<0.1	NA	< 0.1	101%	80%	120%	105%	80%	120%	105%	70%	130%
Bicarb. Alkalinity (as CaCO3)		4073506	54	53	1.9%	< 5	NA	80%	120%						
Carb. Alkalinity (as CaCO3)		4073506	< 10	< 10	0.0%	< 10	NA	80%	120%						
Hydroxide		4073506	< 5	< 5	0.0%	< 5	NA	80%	120%						

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

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
Halifax - Metals - Copper (µg/L)															
Total Copper	195	4065952	14	14	2.9%	< 1	101%	70%	130%	105%	80%	120%	81%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
Halifax - Metals - Total (µg/L)															
Total Aluminum	195	4065952	211	224	6.0%	< 4	101%	70%	130%	106%	80%	120%	73%	70%	130%
Total Antimony	195	4065952	<2	<2	NA	< 2	104%	70%	130%	105%	80%	120%	83%	70%	130%
Total Arsenic	195	4065952	<2	<2	NA	< 2	98%	70%	130%	108%	80%	120%	94%	70%	130%
Total Barium	195	4065952	<5	6	NA	< 5	103%	70%	130%	101%	80%	120%	87%	70%	130%
Total Beryllium	195	4065952	<2	<2	NA	< 2	94%	70%	130%	97%	80%	120%	77%	70%	130%
Total Bismuth	195	4065952	<2	<2	NA	< 2	104%	70%	130%	97%	80%	120%	NA	70%	130%
Total Boron	195	4065952	<5	<5	NA	< 5	98%	70%	130%	85%	80%	120%	74%	70%	130%
Total Cadmium	195	4065952	<0.09	<0.09	NA	< 0.09	98%	70%	130%	112%	80%	120%	91%	70%	130%
Total Chromium	195	4065952	<1	<1	NA	< 1	101%	70%	130%	97%	80%	120%	83%	70%	130%

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: MUNICIPALITY OF ANNAPOLIS COUNTY

AGAT WORK ORDER: 22X917864

PROJECT: Cornwallis Thm's, Haa's Copper, SWA

ATTENTION TO: James Jenner

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

RPT Date: Jul 19, 2022			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Cobalt	195	4065952	<1	<1	NA	< 1	102%	70%	130%	107%	80%	120%	83%	70%	130%
Total Copper	195	4065952	14	14	0.0%	< 1	101%	70%	130%	105%	80%	120%	81%	70%	130%
Total Iron	196	4065939	650	574	12.4%	< 50	97%	70%	130%	104%	80%	120%	109%	70%	130%
Total Lead	195	4065952	0.8	1.0	NA	< 0.5	104%	70%	130%	92%	80%	120%	91%	70%	130%
Total Manganese	196	4065939	133	118	12.0%	< 3	99%	70%	130%	103%	80%	120%	109%	70%	130%
Total Molybdenum	195	4065952	<2	<2	NA	< 2	115%	70%	130%	96%	80%	120%	96%	70%	130%
Total Nickel	195	4065952	<2	<2	NA	< 2	95%	70%	130%	98%	80%	120%	81%	70%	130%
Total Selenium	195	4065952	<1.0	<1.0	NA	2.0	94%	70%	130%	98%	80%	120%	105%	70%	130%
Total Silver	195	4065952	<0.1	<0.1	NA	< 0.1	102%	70%	130%	107%	80%	120%	90%	70%	130%
Total Strontium	196	4065939	10	9	NA	< 5	96%	70%	130%	97%	80%	120%	105%	70%	130%
Total Thallium	195	4065952	<0.2	<0.2	NA	< 0.1	102%	70%	130%	92%	80%	120%	90%	70%	130%
Total Tin	195	4065952	<3	<3	NA	< 2	106%	70%	130%	99%	80%	120%	82%	70%	130%
Total Titanium	195	4065952	<3	9	NA	< 2	120%	70%	130%	NA	80%	120%	75%	70%	130%
Total Uranium	195	4065952	<0.2	<0.2	NA	< 0.2	103%	70%	130%	94%	80%	120%	90%	70%	130%
Total Vanadium	195	4065952	<2	<2	NA	< 2	95%	70%	130%	95%	80%	120%	83%	70%	130%
Total Zinc	195	4065952	<5	<5	NA	< 5	106%	70%	130%	119%	80%	120%	98%	70%	130%
Total Phosphorus	196	4065939	62	<50	NA	< 50	88%	70%	130%	95%	80%	120%	80%	70%	130%

Comments: If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.
If Matrix spike value is NA, the spiked analyte concentration was lower than that of the matrix contribution.

For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

Certified By: Lara Knox

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Chloroacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
Bromoacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
Dichloroacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
Trichloroacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
Bromochloroacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
Dibromoacetic Acid	ORG-120-5110	EPA 552.3	GC/ECD
2-Bromobutanoic acid	ORG-120-5110	EPA 552.3	GC/ECD
Total Haloacetic Acids	ORG-120-5110	EPA 552.3	GC/ECD
HAA5	ORG-120-5110	EPA 552.3	GC/ECD
Chloroform	VOL-120-5001	EPA SW-846 5030B/8260B	GC/MS
Bromodichloromethane	VOL-120-5001	EPA SW-846 5030B/8260B	GC/MS
Dibromochloromethane	VOL-120-5001	EPA SW-846 5030B/8260B	GC/MS
Bromoform	VOL-120-5001	EPA SW-846 5030B/8260B	GC/MS
Total Trihalomethanes	VOL-120-5001	EPA SW-846 5030B/8260B	GC/MS
Toluene-d8	VOL-120-5001	EPA SW846 5030B/8260B	GC/MS
4-Bromofluorobenzene	VOL-120-5001	EPA SW846 5030B/8260B	GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Copper	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Aluminum	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Antimony	INOR-171-6201, INOR-171-6100	SM 3030 E; SM 3125 B	ICP-MS
Total Arsenic	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Barium	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Beryllium	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Bismuth	INOR-171-6201	SM 3030 E; SM 3125 B	ICP/MS
Total Boron	INOR-171-6201	SM 3030 E; SM 3125 B	ICP-MS
Total Cadmium	INOR-171-6201	SM 3030 E; SM 3125 B	ICP/MS
Total Chromium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Cobalt	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP-MS
Total Iron	INOR-171-6100, 171-6201	SM 3030 E; SM 3120 B	ICP/OES
Total Lead	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Manganese	INOR-171-6201	SM 3030 E; SM 3120 B	ICP/OES
Total Molybdenum	INOR-171-6202	SM 3030 E; SM 3125 B	ICP/MS
Total Nickel	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Selenium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Silver	INO-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Strontium	INOR-171-6201	SM 3030 E; SM 3120 B	ICP/OES
Total Thallium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Tin	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Titanium	INOR-171-6100, -6202	SM 3030 E; SM 3125 B	ICP/MS
Total Uranium	INOR-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Vanadium	INORG-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Zinc	INORG-171-6202	SM 3030 E; SM 3125 B	ICP-MS
Total Phosphorus	INOR-171-6100, 171-6201	SM 3030 E; SM 3120 B	ICP/OES
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO2	INOR-121-6027	SM 4500-SiO2 F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-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	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Total Organic Carbon	INOR-121-6026	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

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SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	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	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

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Chain of Custody Record

Laboratory Use Only

Arrival Condition: ☐ Good ☐ Poor (see notes)
Arrival Temperature: 21.3, 21.3, 21.2
Hold Time:
AGAT Job Number: 22X917864
Notes: over temp
Cooler, no ice

Report Information

Company: Mun of the County of Annapolis
Contact: JAMES JENNER
Address: 490 SOUTH BROADWAY
Cornwallis, NS
Phone: 902-526-0566 Fax:
Client Project #: Cornwallis Thm's, Haa's Copper, SWA
AGAT Quotation:
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: JAMES JENNER
   Email: jjenner@annapoliscounty.ca
2. Name:
   Email:

Report Format

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

Turnaround Time Required (TAT)

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

Invoice To Same Yes ☐ / No ☐

Company: County of Annapolis
Contact: alewis@annapoliscounty.ca
Address: PO Box 100
Annapolis Royal NS B0S-1a0
Phone: 902-532-1445 Fax:
PO/Credit Card#:

Regulatory Requirements (Check):

☑ List Guidelines on Report ☐ Do not list Guidelines on Report
☐ PIRI
☐ Tier 1 ☐ Res ☐ Pot ☐ Coarse
☐ Tier 2 ☐ Com ☐ N/Pot ☐ Fine
☐ Gas ☐ Fuel ☐ Lube

☐ CCME
☐ Industrial
☐ Commercial
☐ Res/Park
☐ Agricultural
☐ FWAL
☐ Sediment

☐ CDWQ
☐ NSESQ-Cont. Sites
☐ HRM 101
☐ Storm Water
☐ Waste Water
☐ Other

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

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment
149 Topsail	July 6	Tap	1	
406 Dingle	July 6	Tap	1	
90 Hill side	July 6	Tap	1	
108 Old school	July 6	Tap	1	
Treated Cwtp	July 5	Tap	9	
Raw lake cady	July 5	Lake	9	

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

Samples Relinquished By (Print Name): JAMES JENNER
Date/Time: July 6
Samples Received By (Print Name):
Date/Time:

Samples Relinquished By (Sign): James Jenner
Date/Time: July 6
Samples Received By (Sign):
Date/Time:

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

Page ___ of ___
N°:

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Date revised: June 6, 2016