

MUNICIPAL DRINKING WATER SUPPLIES

ANNUAL REPORT

NOTE : ANNUAL REPORT MUST BE SUBMITTED ON OR BEFORE APRIL 1.

YEAR 2022 _____

MUNICIPALITY OF Annapolis

WATER UTILITY NAME: Annapolis County Water

FACILITY NAME : Bridgetown

APPROVAL TO OPERATE NO.: 2010-073601-R01

WATER WITHDRAWAL APPROVAL NO: 2009-068808-T01

I certify that information provided in this report is a complete and accurate representation of Water System operation.

Offences under the Environment Act:

158 A person who

- (a) knowingly provides false or misleading information pursuant to a requirement under this Act to provide information;
- (b) provides false or misleading information pursuant to a requirement under this Act to provide information;
- (c) does not provide information as required pursuant to this Act;
- (d) hinders or obstructs an inspector or administrator who is exercising powers or carrying out duties, or attempting to do so, pursuant to this Act;
- (e) knowingly contravenes a term or condition of an approval, an environmental assessment approval, a temporary approval, a certificate of variance or a certificate of qualification;

Name of the person in overall direct responsible charge

[Print Name] JAMES JENNER.....

Signature

Manager responsible for water system [Print Name]

Signature

PART 1 - STANDARD SUBMISSIONS.

Has the Utility submitted following updates for the next year:

Required Submission	Yes	No	N/A Last year submission remains unchanged
Contingency Plan			X
Notification Procedure			X
Monitoring Program (including sampling points location)			X
QA/QC			X
Source Water Protection Plan		X	
Source Water Implementation Schedule		X	
Lab Information			X
Operations Manual			X
Staff List and certification			X

PART 2 - WATER TREATMENT PLANT MONITORING

A. WATER TREATMENT

Table 1- Raw water flow

Month	Raw water flow (m ³)	
	Source..... Wells	
	Total Monthly Volume (m ³)	Max Daily Volume (m ³ /d)
January	18304	590
February	16103	575
March	16859	561
April	18023	1027
May	18124	839
Jun	21138	841
July	20059	730
August	17053	750
September	18271	1147
October	17544	799
November	22696	656
December	23371	640
Total for the year.....	227,545	
Maximum month	Dec	
Average	18,962.08	
Water withdraw Approval No.. 2009-068808-T01	Withdraw limit:24,000.m3/month.....	
Approval to Operate No:.. 2010-073601-R01.	Rated design capacity:.1000..cu3/day...	

Table 2 - Filtered water turbidity

Month	Filter 1			Filter 2			Combined Turbidity	
	Turbidity		Filter to waste	Turbidity		Filter to waste	Combined Turbidity	
	How many times exceed Approval	max NTU	max (upon return to production)	How many times exceed Approval	max NTU	max	How many times exceed Approval	max
January	0	N/A		0				
February	0			0				
March	0			0				
April	0			0				
May	0			0				
Jun	0			0				
July	0			0				
August	0			0				
September	0			0				
October	0			0				
November	0			0				
December								
If Approval Limits for Filtration were exceeded provide date when Department was notified:								
Action taken:								

Table 2 - Well water turbidity

Month	Well 2		Well 3		Well #4
	Turbidity		Turbidity		
	How many times exceed Approval	maximum NTU	How many times exceed Approval	maximum NTU	
January	0	.460	0	.193	.035
February	0	.801	0	.112	.093
March	0	.786	0	.133	.035
April	0	1.785	0	.112	.039
May	0	.519	0	.138	.037
Jun	0	.307	0	.095	.512
July	0	.741	0	.122	.400
August	0	.194	0	.130	.02
September	0	.328	0	.127	.02
October	0	.419	0	.056	.02
November	0	.330	0	.095	.022
December	0	1.827	0	.105	.02
If exceeded provide dates of occurrence and date when Department was notified.					
Action taken:					

Table 3 - Disinfection (leaving treatment plant or well)

Month	Disinfectant residual (mg/l)			CT value
	Minimum this month	How many times below Approval limit	Maximum this month	How many times CT _{achieved} was less than CT _{required}
January	.93	0	1.78	0
February	.86	0	1.18	0
March	.89	0	1.64	0
April	1.14	0	1.56	0
May	1.14	0	1.44	0
Jun	.99	0	1.62	0
July	1.15	0	1.61	0
August	.95	0	1.39	0
September	.65	0	1.20	0
October	.69	0	1.07	0
November	.95	0	1.20	0
December	1.10	0	1.3	0
If Approval Limits were exceeded provide date of occurrence and date when Department was notified:				
If CT requirements were not met provide date of occurrence and date when Department was notified:				
Action Taken:				
NOTE: CT values must be calculated daily, or minimum operational conditions must be monitored daily and records kept by Approval Holder				
MINIMUM OPERATIONAL PARAMETERS TO PROVIDE REQUIRED CT (CT calculations for "worst case scenario" must be provided to Department) See attached				
Peak Daily Flow	1147			
Temperature at CT control Point	11.2			
Minimum residual at CT control Point	.65			
pH at CT control Point	7.6			
Water level in the tank during peak hourly flow	75%			
Total chlorine use this year: 0. kg			Target organism: Giardia..... Or Viruses.....	

Table 4 - Bacteriological quality (leaving treatment plant or GUDI well)

Month	Total number of samples taken	<i>E.coli</i>	Total Coliform	Giardia		Cryptosporidium	
				if tested N/A		if tested N/A	
		No. of Present this month	No. of Present this month	No. of Present this month	Total	No. of Present this month	Total
January	5	0	0	0	0	0	0
February	4	0	0	0	0	0	0
March	4	0	0	0	0	0	0
April	4	0	0	0	0	0	0
May	5	0	0	0	0	0	0
Jun	4	0	0	0	0	0	0
July	4	0	0	0	0	0	0
August	5	0	0	0	0	0	0
September	4	0	0	0	0	0	0
October	5	0	0	0	0	0	0
November	4	0	0	0	0	0	0
December	3	0	0	0	0	0	0
If <i>E.coli</i> Present provide date of occurrence and date when Department was notified:							
If Total Coliforms Present provide date of occurrence and date when Department was notified							
Action taken:							
Certified Lab: Valley Regional Hospital							

Table 5 - Fluoride (if fluoridating)

Month	Min this month (mg/l)	Max this month (mg/l)
January	N/A	
February		
March		
April		
May		
Jun		
July		
August		
September		
October		
November		
December		
If exceeded Approval limits provide date of occurrence and date when Department was notified:		
Action taken:		

Table 6 - Aluminum (for facilities using aluminum-based coagulants)

	At Treatment Facility		Distribution System*	
Month	Min this month (mg/l)	Max this month (mg/l)	Min this month (mg/l)	Max this month (mg/l)
January	N/A			
February				
March				
April				
May				
Jun				
July				
August				
September				
October				
November				
December				
If Aluminum exceeded Approval limits provide date of occurrence and date when Department was notified				
Action taken:				

Table 7- pH

Month	Raw water inlet		CT Control Point	
	Minimum this month	Maximum this month	Minimum this month	Maximum this month
January	7.8	8.45	7.8	8.45
February	7.78	7.92	7.78	7.92
March	7.70	7.92	7.70	7.92
April	7.68	7.87	7.68	7.87
May	7.65	7.67	7.65	7.67
Jun	7.60	7.76	7.60	7.76
July	7.60	7.92	7.60	7.92
August	7.80	7.98	7.80	7.98
September	7.80	7.93	7.80	7.93
October	7.78	7.89	7.78	7.89
November	7.78	8.86	7.78	8.86
December	8.15	8.94	8.15	8.94
Comments:				

Table 8 - Guidelines for Monitoring Public Drinking Water Supplies (Section 33 of Regulations)

Parameter	Health based guideline (mg/l)	AO [or OG] (mg/l)	Raw mg/l (maximum this year)	Treated mg/l (maximum this year)	Date	Location
Alkalinity	-	-				
Aluminum	0.1/0.2					
Ammonia	-	-				
Antimony	0.006	-				
Arsenic	0.010	-				
Barium	1	-				
Boron	5	-				
Cadmium	0.005	-				
Calcium	-	-				
Chloride	-	≤250				
Chromium	0.05	-				
Colour	-	≤15				
Conductivity	-	-				
Copper	-	≤1.0				
Fluoride	1.5	-				
Hardness	-	-				
Iron	-	≤0.3				
Lead	0.010	-				
Magnesium	-	-				
Manganese	-	≤0.05				
Nitrate - nitrogen	10	-				
pH	-	6.5-8.5				
Potassium	-	-				
Selenium	0.01	-				

Parameter	Health based guideline (mg/l)	AO [or OG] (mg/l)	Raw mg/l (maximum this year)	Treated mg/l (maximum this year)	Date	Location
Sodium	-	≤200				
Sulphate	-	≤500				
Total Dissolved Solids	-	≤500				
Total Organic Carbon	-	-				
Turbidity	See Approval	-				
Uranium	0.02	-				
Zinc	-	≤5.0				
OTHER PARAMETERS SAMPLED						
Has any of the parameter exceeded Guidelines Yes..... No...X.						
If Yes provide date of occurrence and date when Department was notified:						
Action taken:						
Certified Lab:AGAT						

Table 9 - Raw Water turbidity

Month	Minimum NTU	Maximum NTU
January	.022	.226
February	.04	.119
March	.046	.160
April	.045	.122
May	.027	.076
Jun	.028	.359
July	.040	.620
August	.024	.144
September	.031	.039
October	.016	.059
November	.017	.047
December	.017	.122

NOVA SCOTIA ENVIRONMENT

B. WASTE TREATMENT

Table 10 - Waste water discharge

Month	Suspended Solids Limit:.....		Aluminum Limit:.....		Chlorine Limit:.....		pH Limit:		Fish toxicity	
	average mg/l	Max mg/l	average mg/l	Max mg/l	average mg/l	Max mg/l	average mg/l	Max mg/l		
January										
February										
March										
April										
May										
Jun										
July										
August										
September										
October										
November										
December										
Has any of the parameter exceeded Limits Yes..... No.....										
If Yes provide date of occurrence and date when Department was notified:										

PART 3 - WATER DISTRIBUTION SYSTEM MONITORING

Table 11 - Distribution System Bacteriology and Disinfection Residual

Site : A		Location: Nobs									
Month	<i>E.coli</i>				Total Coliforms				Free chlorine residual		
	Present	Absent	Total number of samples	% Absent	Present	Absent	Total number of samples	% Absent	Min mg/l	Max mg/l	No. below Approval Limits
January	0	5	5	100	0	5	5	100	.84	.95	0
February	0	4	4	100	0	4	4	100	.86	1.02	0
March	0	4	4	100	0	4	4	100	.53	.94	0
April	0	4	4	100	0	4	4	100	.81	1.06	0
May	0	5	5	100	0	5	5	100	.69	.90	0
Jun	0	4	4	100	0	4	4	100	.62	.78	0
July	0	4	4	100	0	4	4	100	.54	.82	0
August	0	5	5	100	0	5	5	100	.42	.61	0
September	0	4	4	100	0	4	4	100	.27	.53	0
October	0	5	5	100	0	5	5	100	.52	.68	0
November	0	4	4	100	0	4	4	100	.52	.72	0
December	0	3	3	100	0	3	3	100	.75	1.03	0
If Approval limits exceeded, provide date of occurrence and date when Department was notified:											
Action taken:											

Table 11 - Distribution System Bacteriology and Disinfection Residual (continued)

Site : B		Location: Wards									
Month	<i>E.coli</i>				Total Coliforms				Free chlorine residual		
	Present	Absent	Total number of samples	% Absent	Present	Absent	Total number of samples	% Absent	Min mg/l	Max mg/l	No. below 0.2 mg/l
January	0	5	5	100	0	5	5	100	.58	.97	0
February	0	4	4	100	0	4	4	100	.74	.90	0
March	0	4	4	100	0	4	4	100	.50	.88	0
April	0	4	4	100	0	4	4	100	.68	1.01	0
May	0	5	5	100	0	5	5	100	.60	.87	0
Jun	0	4	4	100	0	4	4	100	.68	.89	0
July	0	4	4	100	0	4	4	100	.56	.85	0
August	0	5	5	100	0	5	5	100	.45	.69	0
September	0	4	4	100	0	4	4	100	.27	.53	0
October	0	5	5	100	0	5	5	100	.52	.68	0
November	0	4	4	100	0	4	4	100	.50	.91	0
December	0	3	3	100	0	3	3	100	.76	.89	0
Was E.Coli or Total Coliform present in any sample this year Yes..... No.....											
If Yes provide date of occurrence and date when Department was notified:											
Action taken:											

Table 12a - Distribution System THM's

Month	Site A Location: Storage tank	Site B Location Wards	Site C Location: Nobs
	THM total mg/l	THM total mg/l	THM total mg/l
January			
February	<.001	.003	.005
March 1st Qt			
April			
May	<.001	.005	.006
Jun 2nd Qt			
July	<.001	.002	.007
August			
September 3rd Qt			
October	<.001	.004	.008
November			
December 4th Qt			
Annual Average	<.001	.003	.006
Limits	0.100 mg/l THM's - Locational running annual average based on a minimum of four quarterly samples.		
Action taken:			

Table 12b - Distribution System HAA's

Month	Site A Location: Storage tank	Site B Location: Wards	Site C Location: Nobs
	HAA (5) mg/l	HAA (5) mg/l	HAA (5) mg/l
January			
February	<.004	<.004	<.004
March 1 st Qt			
April			
May	<.004	<.004	<.004
Jun 2 nd Qt			
July	<.004	<.004	<.004
August			
September 3 rd Qt			
October	<.004	<.004	<.004
November			
December 4 th Qt			
Annual Average	<.004	<.004	<.004
Limits	0.080 mg/l HAA's - Locational running annual average based on a minimum of four quarterly samples.		
Action taken:			

Table 13 - Distribution System Turbidity

Month	Site A Location: Nobs		Site B Location: Wards		Site C Location: Storage tank	
	min NTU	max NTU	min NTU	max NTU	min NTU	max NTU
January	.17	.21	.21	.24	.16	.19
February	.18	.24	.19	.28	.17	.24
March	.16	.25	.18	.25	.09	.22
April	.14	.19	.16	.18	.12	.19
May	.22	.28	.20	.27	.19	.25
Jun	.16	.20	.17	.21	.20	.26
July	.22	.30	.21	.33	.15	.37
August	.16	.23	.20	.26	.21	.24
September	.16	.24	.16	.33	.17	.27
October	.22	.27	.29	.32	.21	.25
November	.12	.21	.11	.15	.16	.23
December	.15	.18	.12	.14	.11	.19
If Approval limits were exceeded provide date of occurrence and date when Department was notified:						
Action taken:						

Table 14 - Distribution System Lead

Month* (specify date sampled)	Site A Location: 12 Church st		Site B Location: 10 Rectory		Site C Location: 4037 Hwy 201	
	min mg/l	max mg/l	min mg/l	max mg/l	min mg/l	max mg/l
May						
Jun						
July		<.0005		<.0005		<.0005
August						
September						
October						

If Approval limits were exceeded provide date of occurrence and date when Department was notified:

* To be sampled during warmest months

Table 15 - Distribution System Corrosion Control Program

Month	Site A Location: 18 Curch st		Site B Location: 54 Rectory		Site C Location: 124 South st	
	Parameter 1LEAD..	Parameter 2	Parameter 1LEAD.....	Parameter 2	Parameter 1LEAD.....	Parameter 2
January						
February						
March						
April						
May						
Jun						
July	.006		<.0005		<.0005	
August						
September						
October						
November						
December						
Comments:						

Table 16 - Storage tank chlorine residual

Month	Storage Tank Location..Hampton Mtn Rd			Storage Tank Location.....			
	Min mg/l	Max mg/l	Number of times residual was less than 0.2 mg/l	Min mg/l	Max mg/l	Number of times residual was less than 0.2 mg/l	
January	.89	1.01	0	na			
February	1.03	1.15	0				
March	.59	1.20	0				
April	1.09	1.23	0				
May	.98	1.24	0				
Jun	.90	1.10	0				
July	1.29	1.41	0				
August	1.14	1.36	0				
September	.52	1.16	0				
October	1.03	1.05	0				
November	.95	1.17	0				
December	1.14	1.21	0				
Action taken:							
Certified Lab:							

SOURCE WATER PROTECTION PLAN ANNUAL UPDATE CHECKLIST

Yearly review of the source water protection (SWP) plan is required. The review should consider questions including, but not limited, those listed below. Every five years, or whenever significant changes to the municipal water system or risks to its source occur, the municipal unit should consider revising the plan. Otherwise, updates may be added to the original source water protection plans in an appropriately identified appendix.

QUESTIONS TO CONSIDER IN ANNUAL UPDATE
How many source water committee meetings have been held in the past year? Have there been any changes to committee membership? None
Have there been any changes made to the committee terms of reference? No
Have changes to the system infrastructure been made (e.g. wells constructed or decommissioned)NO
Have any new risks to the watershed or aquifer area been identified? For example: <ul style="list-style-type: none"> · have new land uses which could impact the source water commenced (or existing uses changed or ceased) within the watershed or aquifer area? · have recreational uses of concern continued, declined or increased with the past year within the watershed or aquifer area? NONE
If new risks have been identified, what risk reduction strategies will be employed? N/A
Have any accidents/emergencies not considered in the contingency plan occurred within the watershed or aquifer area within the past year? NO
Has source water monitoring (differs from regulatory compliance monitoring) been undertaken? Please describe the results. NONE
Has your contingency plan been reviewed and contact information updated? YES
Have any accidents/emergencies not considered in the contingency plan occurred within the watershed or aquifer area within the past year? NO
Provide an updated schedule for the implementation of the SWP plan, including items completed within the last year, items ongoing, or items yet to be completed. Based on consideration of all the above questions, identify if any items need to be added to the implementation plan.

DESCRIPTION OF ANY EMERGENCY AND UPSET CONDITIONS AND CORRECTIVE ACTION

April 26 2022 water main break Bridgetown

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MODIFICATION TO CONTINGENCY PLAN, EMERGENCY NOTIFICATION OR PROCEDURE OR
LABORATORY CHANGE:

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RECORD OF ANY VIOLATIONS OF APPROVAL AND CORRECTIVE ACTIONS TAKEN:

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SUMMARY OF COMPLAINTS RECEIVED AND CORRECTIVE ACTIONS:

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REVIEW OF QA/QC PROGRAM TO VALIDATE PLANT INSTRUMENT AND FACILITY LAB:

Here at the county we use all the same on line monitors.

For on line chlorine we use models CL 17. These units are cleaned once a month to insure true readings. We double check all readings 4 – 5 times week depending on holidays. We check the readings using DR2000 spectrophotometers or DR 2800 spectrophotometers.

Turbidity we use Hach 1720c and 1720e model on line turbidity meters. The units are cleaned once a month. All units are double checked at least 4-5 times a week depending on holidays. The units we use to double check the readings are bench model 2100n turbidity meters. All sites have calibration tubes to calibrate the 2100n.

Ph probes are used.

Operators are required to submit their chlorine counts to the ODRC at least once a week to insure no low chlorine residuals are found.

All month end reports are sent to the ODRC.

Month end reports are then sent to the Municipal operations supervisor.

APPENDIX A: Health-related Guidelines for Canadian Drinking Water Quality (Section 35 of Regulations)

Parameter	Health based guideline (mg/l)	Raw mg/l (maximum this year)	Treated mg/l (maximum this year)	Date	Location
aldicarb	0.009				
aldrin + dieldrin	0.0007				
aluminum	0.1 or 0.2				
antimony	0.006				
arsenic	0.010				
atrazine + metabolites	0.005				
azinphos-methyl	0.02				
barium	1				
bendiocarb	0.04				
benzene	0.005				
benzo[a]pyrene	0.00001				
boron	5				
bromate	0.01				
bromoxynil	0.005				
cadmium	0.005				
carbaryl	0.09				
carbofuran	0.09				
carbon tetrachloride	0.005				
chloramines (total)	3.0				
chlorate	1.0				
chlorite	1.0				
chlorpyrifos	0.09				
chromium	0.05				
cyanazine	0.01				
cyanide	0.2				
cyanobacterial toxins (as microcystin-LR) - surface water only	0.0015				

Parameter	Health based guideline (mg/l)	Raw mg/l (maximum this year)	Treated mg/l (maximum this year)	Date	Location
diazinon	0.02				
dicamba	0.12				
1,2-dichlorobenzene	0.2				
1,4-dichlorobenzene	0.005				
1,2-dichloroethane	0.005				
1,1-dichloroethylene	0.014				
dichloromethane	0.05				
2,4-dichlorophenol	0.9				
dichlorophenoxyacetic acid,(2,4-D)	0.1				
diclofop-methyl	0.009				
dimethoate	0.02				
dinoseb	0.01				
diquat	0.07				
diuron	0.15				
fluoride	1.5				
glyphosate	0.28				
Haloacetic Acids (HAAs)	0.080				
lead	0.01				
malathion	0.19				
mercury	0.001				
methoxychlor	0.9				
metolachlor	0.05				
metribuzin	0.08				
monochlorobenzene	0.08				
nitrate - nitrogen	10				
nitrilotriacetic acid (NTA)	0.4				
paraquat (as dichloride)	0.01				
parathion	0.05				
pentachlorophenol	0.06				

Parameter	Health based guideline (mg/l)	Raw mg/l (maximum this year)	Treated mg/l (maximum this year)	Date	Location
phorate	0.002				
picloram	0.19				
selenium	0.01				
simazine	0.01				
terbufos	0.001				
tetrachloroethylene	0.03				
2,3,4,6-tetrachlorophenol	0.1				
trichloroethylene	0.005				
2,4,6-trichlorophenol	0.005				
trifluralin	0.045				
trihalomethanes (THM's)	0.100				
turbidity	See Approval				
uranium	0.02				
vinyl chloride	0.002				
Gross alpha	0.5 Bq/L				
Gross beta	1 Bq/L				
Lead 210	0.2 Bq/L				
Has any of the parameter exceeded Guidelines Yes..... No.....					
If Yes provide date of occurrence and date when Department was notified:					
Action taken:					
Certified Lab: AGAT					

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