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 :

APPROVAL TO OPERATE NO. .....

WATER WITHDRAWAL APPROVAL NO .....

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..... Well No, Lake or River Name	
	Total Monthly Volume (m^3)	**Max Daily Volume (m^3/d)**
January		
February		
March		
April		
May		
Jun		
July		
August		
September		
October		
November		
December		
Total for the year.....		
Maximum month		
Average		
Water withdraw Approval No..	Withdraw limit: .....m3/day.....	
Approval to Operate No:....	Rated design capacity:...cu3/day...	

Table 2 - Filtered water turbidity

Month	Filter 1			Filter 2			Combined Turbidity	
	Turbidity		Filter to waste	Turbidity		Filter to waste		
	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			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 1		Well 2		Comments
	Turbidity		Turbidity		
	How many times exceed Approval	**maximum NTU**	**How many times exceed Approval**	**maximum NTU**	
January	0		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	0		0		

If exceeded provide dates of occurrence and date when Department was notified.

Action taken: Wells are combined together

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		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		0		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	
Temperature at CT control Point	
Minimum residual at CT control Point	
pH at CT control Point	
Water level in the tank during peak hourly flow	75%

Total chlorine use this year:...kg	**Target organism: Giardia..... Or Viruses.....**

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

Month	Total number of samples taken	*E.coli*	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		0	0	0	0	0	0
February		0	0	0	0	0	0
March		0	0	0	0	0	0
April		0	0	0	0	0	0
May		0	0	0	0	0	0
Jun		0	0	0	0	0	0
July		0	0	0	0	0	0
August		0	0	0	0	0	0
September		0	0	0	0	0	0
October		0	0	0	0	0	0
November		0	0	0	0	0	0
December		0	0	0	0	0	0

If *E.coli* 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				
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				
February				
March				
April				
May				
Jun				
July				
August				
September				
October				
November				
December				
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		
February		
March		
April		
May		
Jun		
July		
August		
September		
October		
November		
December		

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:**										
Month	***E.coli***				**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			100	0			100			0
February	0			100	0			100			0
March	0			100	0			100			0
April	0			100	0			100			0
May	0			100	0			100			0
Jun	0			100	0			100			0
July	0			100	0			100			00
August	0			100	0			100			0
September	0			100	0			100			0
October	0			100	0			100			0
November	0			100	0			100			0
December	0			100	0			100			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:**											
Month	***E.coli***				**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			100	0			100			0	
February	0			100	0			100			0	
March	0			100	0			100			0	
April	0			100	0			100			0	
May	0			100	0			100			0	
Jun	0			100	0			100			0	
July	0			100	0			100			0	
August	0			100	0			100			0	
September	0			100	0			100			0	
October	0			100	0			100			0	
November	0			100	0			100			0	
December	0			100	0			100			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: School closed for summer break in July , Aug

Table 12a - Distribution System THM's

Month	Site A Location: west	Site B Location east	Site C Location: pw shop
	THM total mg/l	THM total mg/l	THM total mg/l
January			
February			
March **1st Qt**			
April			
May			
Jun **2nd Qt**			
July			
August			
September **3rd Qt**			
October			
November			
December **4th Qt**			
Annual Average			
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: west	Site B Location: east	Site C Location: Pw shop
	HAA (5) mg/l	HAA (5) mg/l	HAA (5) mg/l
January			
February			
March **1st Qt**			
April			
May			
Jun **2nd Qt**			
July			
August			
September **3rd Qt**			
October			
November			
December **4th Qt**			
Annual Average			
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:		Site B Location:		Site C Location:	
	min NTU	max NTU	min NTU	max NTU	min NTU	max NTU
January						
February						
March						
April						
May						
Jun						
July						
August						
September						
October						
November						
December						
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: 5287 Granville		Site B Location: pw shop		Site C: 5276 Granville	
	min mg/l	max mg/l	min mg/l	max mg/l	min mg/l	max mg/l
May						
Jun						
July						
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:		Site B Location:		Site C Location:	
	Parameter 1 .....LEAD..	**Parameter 2**	**Parameter 1** .....LEAD.....	**Parameter 2**	**Parameter 1** .....LEAD.....	**Parameter 2** .....
January						
February						
March						
April						
May						
Jun						
July						
August						
September						
October						
November						
December						
Comments:						

Table 16 - Storage tank chlorine residual

Month	Storage Tank Location.....			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			0	na			
February			0				
March			0				
April			0				
May			0				
Jun			0				
July			0				
August			0				
September			0				
October			0				
November			0				
December			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: · 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

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

RECORD OF ANY VIOLATIONS OF APPROVAL AND CORRECTIVE ACTIONS TAKEN:

Jan 21 reported to Environment that Yarmouth lab lost a water sample from the west test site

SUMMARY OF COMPLAINTS RECEIVED AND CORRECTIVE ACTIONS:

.

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