Town of Cornwall
so much to offer...

Water & Sewer Utility

WATER ANAYLSIS REPORT 2022

Drinking water quality in the Town of Cornwall is maintained according to the standards set out in the *Guidelines for Canadian Drinking Water Quality*.Throughout the year, our Utility staff sample the Town's water distribution and wastewater treatment plant to ensure residents continue to receive the highest quality of water and wastewater treatment.

Bacteria Testing Results

In the Town's commitment to service and keeping a sustainable environment, our sampling procedures exceed provincial standards.

Samples from Distribution System						
Month	# of Samples	Positive TC Test (TC ≤ 10)	# of Non-Compliant (TC> 10)	Ecoli	Positive BG Tests (BG ≤ 200)	# of Non-Compliant (BG > 200)
January	12	0	0	0	0	0
February	12	1	0	0	0	0
March	12	0	0	0	0	0
April	12	0	0	0	0	0
May	19	0	0	0	0	0
June	12	0	0	0	0	0
July	12	0	0	0	0	0
August	16	0	0	0	0	0
September	20	0	1	0	0	0
October	17	0	0	0	0	0
November	14	0	0	0	0	0
December	17	0	0	0	0	0
Total	175	1	1	0	0	0

*All retests reported negative.

Drinking water within the Town is chlorinated to have a minimum Free Chlorine Residual of at least 0.2 mg/L or higher at all points in the system at all times. This level of chlorination is an industry standard for drinking water disinfection and is recommended by the Guidelines for Canadian Drinking Water Quality.

In accordance with the *Drinking Water and Wastewater Facility Operating Regulations*, a water sample is collected from each source of supply (well) on a monthly basis and analyzed for the presence of coliform bacteria and E.coli.

Following collection, all water samples are sent to the Provincial Department of Environment Analytical Laboratory in Charlottetown. Each sample is tested for Total Coliforms DC and Escherichia Coli DC (E. Coli). In addition to the bacteria tests which are performed at the Provincial Lab, the Free Chlorine Residual is analyzed and recorded by Utility Staff at the time of sample collection, as required by section 11(1)(e) of the Drinking Water and Wastewater Facility Operating Regulations.

Untreated Water (Samples from Wells)											
Month	Meadowbank	Northgate	East Wiltshire	River Point	Main	# of Samples	Positive TC Test (TC ≤ 10)	# of Non-Compliant (TC> 10)	Ecoli	Positive BG Tests (BG ≤ 200)	# of Non-Compliant (BG > 200)
January	3	1	2	1	0	7	2	0	0	0	0
February	3	1	2	1	0	7	1	1	0	0	0
March	3	1	2	1	3	10	4	1	0	0	0
April	3	1	2	1	4	11	3	3	0	0	0
May	3	1	2	1	4	11	2	4	0	0	0
June	3	1	2	1	4	11	5	2	0	0	0
July	3	1	2	1	4	11	4	2	0	0	0
August	3	1	2	1	4	11	3	3	0	0	0
September	3	1	2	1	10	17	4	2	0	0	0
October	3	1	2	1	6	13	4	4	0	0	0
November	3	1	2	3	6	15	4	5	3	0	0
December	3	1	2	4	4	14	5	3	2	0	0
Total	36	12	24	17	49	138	41	30	5	0	0

*All retests reported negative.

For each non-compliant sample at Meadowbank, Northgate and East Wiltshire, the well is isolated from the system and is flushed and resampled until clear samples are obtained. At River Point the Town uses a UV disinfection system along with chlorine disinfection together to provide safe drinking water.

River Point well #1 is no longer used for daily use. Ground water sampling has shown the aquifer has persistent contamination that is removed temporarily by shocking the system. Though River Point station has sufficient treatment to treat the water from well #1 to meet drinking water standards, a new water source for the area is being explored.

In 2022, the Town of Cornwall pumped an average of 2,050 cubic meters of water per day. During the summer months the utility pumped an average of 2,200 cubic meters of water per day.

Pesticide Monitoring Program Results

Samples were collected from wells in 2022 as part of the provincial annual pesticide monitoring program, however, results are not yet available. Samples are collected from source wells around Cornwall and analyzed for up to 54 selected pesticides More information is available on the province's open data portal (https://data.princeedwardisland.ca/) project OD0004 Pesticide Analysis.

Chemistry Analysis

The Drinking Water and Wastewater Facility Operating Regulations require all active wells to be subject to chemical analysis. A general chemical analysis of each well must be performed annually, and all water chemistry analysis for Town of Cornwall is performed at the Provincial Analytical Laboratory. The Guidelines for Canadian Drinking Water Quality set a Maximum Allowable Concentration (MAC) for various chemical contents of drinking water. A detailed chemical analysis is performed every 3 years and is performed by a private analytical laboratory with a copy of the results provided to the province for review.

The Town of Cornwall drew samples from each active well on May 17, 2022, for general chemical analysis.

The results showed that all active wells were within the Guidelines for Canadian Drinking Water Quality.

Chemical Analysis Report Table 1

Chemical Analysis Report						
Chemical	East Wiltshire Well #1 (mg/L)	East Wiltshire Well #2 (mg/L)	Main Street Well #1 (mg/L)	Main Street Well #2 (mg/L)	Main Street Well #3 (mg/L)	Main Street Well #4 (mg/L)
Alkalinity Total	124	152	83.6	79.2	83.6	83.2
Arsenic	0.002	0.001	0.001	0.001	0.002	0.002
Barium	0.8961	0.8185	0.1258	0.0997	0.5991	0.5263
Calcium	28.77	45.36	24.32	24.24	26.59	27.68
Chloride	17.3	38.2	9.3	9	12.2	11.6
Copper	<0.002	<0.002	0.01	0.004	0.003	0.004
Iron	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Lead	0.0003	0.0005	0.0001	<.0001	0.0005	<0.0001
Magnesium	16.44	23.39	11.78	11.61	13.22	13.45
Manganese	<0.0005	<0.0005	0.0009	<0.005	<0.005	<0.005
Nitrate-N	1.9	1.9	2.4	2.5	5.5	4.8
pH	7.9	7.5	7.7	7.9	8.1	8.1
Phosphorus	0.02	0.06	0.1	0.11	0.06	0.07
Potassium	2.26	1.68	1.39	1.23	1.2	1.3
Selenium	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium	13.71	11.47	4.58	4.51	4.16	4.5
Sulfate	5.27	6.96	6.82	6.25	10.52	6.95
Uranium	0.017	0.002	0.0004	0.0003	0.0009	0.0011
Zinc	<0.002	0.002	0.002	0.003	0.004	0.002
Total Hardness	139.5	209.5	109.2	108.3	120.8	125.5

Chemical Analysis Report Table 2

Chemical Analysis Report							
Chemical	Meadowbank Well #1 (mg/L)	Meadowbank Well #2 (mg/L)	Meadowbank Well #4 (mg/L)	Northgate Well #1 (mg/L)	River Point Well #2 (mg/L)	MAC* (mg/L)	AO* (mg/L)
Alkalinity Total	101	110	105	118	123	--	--
Arsenic	0.003	0.003	0.004	0.001	0.001	0.01	--
Barium	0.5631	0.3218	0.3737	0.5583	0.2117	1.0	--
Calcium	27.51	34.97	34.56	35.48	34.37	--	--
Chloride	98.4	18.7	25.3	20.2	17.3	--	≤250
Copper	0.007	0.006	0.006	0.007	0.002	--	≤1.0
Iron	<0.002	<0.002	<0.002	<0.002	<0.002	--	≤0.3
Lead	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	--
Magnesium	16.08	22.24	11.4	18.41	17.04	--	--
Manganese	<0.0005	<0.0005	<0.0005	<0.005	<0.0005	--	≤0.05
Nitrate-N	1.4	1.5	1.7	4.7	3.7	10.0	--
pH	8.2	8.1	8.2	7.6	7.5	--	6.5-8.5
Phosphorus	0.02	0.03	0.03	0.05	0.1	--	--
Potassium	2.39	2.79	1.62	1.86	1.52	--	--
Selenium	0.005	0.005	0.005	0.0002	<0.0002	0.05	--
Sodium	53.07	96.1	29.52	7.28	8.93	--	≤200
Sulfate	11.12	23.9	6.3	6.08	7.08	--	≤500
Uranium	0.015	0.012	0.011	0.004	0.0001	0.02	--
Zinc	0.018	0.009	0.005	0.009	0.003	--	≤5
Total Hardness	134.9	178.9	101.5	164.4	156	--	≤200

WASTEWATER EFFLUENT

In accordance with regulations, the Town of Cornwall's two lagoons are sampled quarterly, and the results are shown in the table below. In 2022 there was an increase in sampling and monitoring of the lagoons due to projects within the wastewater treatment facilities that required lowering of the water level within the cells.

WASTEWATER TREATMENT REPORT						
North River Lagoon				Cornwall Lagoon		
Month	Suspended Solids (MG/L)	cBOD (mg/L)	Average Faecal Coliform (MPN/100ml)	Suspended Solids (MG/L)	cBOD (mg/L)	Average Faecal Coliform (MPN/100ml)
January	58	30	33	N/A	N/A	N/A
February	42	21	357	N/A	N/A	N/A
March	35	15	52	12	12	46
April	27	10	26	N/A	N/A	N/A
May	53	13	39	N/A	N/A	N/A
June	34	30	79	20	10	2
July	41	16	2	N/A	N/A	N/A
August	28	N/A	13	N/A	N/A	N/A
September	7	15	41	21	11	262
October	16	11	30	52	67	1600
November	15	10	23	12	10	2
December	11	10	2	19	12	49

The Town of Cornwall is required not to exceed 25 mg/L of Total Suspended Solids (TSS), 25mg/L of Carbonaceous Biochemical Oxygen Demand (cBOD), and Faecal Coliform a mean of 200 MPN/100ml and a maximum of 400 MPN/100ml.

UTILITY PROJECTS

The Town of Cornwall Water and Sewer Utility in 2022, has carried out a variety of projects to expand and maintain the water and sewer system owned and operated by the Town.

Hydrant Maintenance

The Utility performed biannual (spring and fall) maintenance on the fire hydrants located around the Town. This process requires each hydrant to be inspected and operated to ensure that it is in good working order. The Utility also completed flow testing on multiple hydrants around the Town. The hydrants were repainted to National Fire Protection Association (NFPA) standards and colour codes for fire flows.

Lift Stations

The Utility conducted regular inspections of all lift stations. This process includes cleaning the chambers and lifting the individual sewer pumps for cleaning and inspections. As a result of the inspections, several pumps were taken out of service for a short period of time while they were sent away for service.

Wellfield Development

The Town's new wellfield became operational in 2022 and is pumping into the Utility's distribution system. The new wellfield being online means an increase in the amount of water available for the community today and for future development.

North River Wastewater Treatment Plant Improvements

Repairs were completed to the North River Lagoon cell #2. The cell was relined with new geosynthetic material and repacked to fix the compromised berm and to prevent future leaks. Work was completed in early December, at which time the bypass was closed, and the cell was allowed to fill to its normal operating level. No further leakage has been detected since repairs were completed.

Main Street Watermain Project

The Utility completed a project to upsize the watermain on Main Street. The upsized watermain runs from Town boundaries at Clyde River to the existing water tower in the Cornwall Business Park. This will allow increased fire flow and increased volume of water in the distribution system for commercial development along Main Street. Reinstatement from the project will continue into the Spring of 2023.

Hyde Creek Wastewater Treatment Plant Improvements

The Utility completed an upgrade to the Hyde Creek Wastewater Treatment Plant and performed a desludging project within the treatment plants lagoon cells. Non biodegradable biosolids and waste products were removed from the cells of the lagoon. By desludging the lagoon cells, it increases the efficiency of the lagoons to break down wastewater and increases the overall capacity of the lagoon.

Hurricane Fiona

In the aftermath of Hurricane Fiona, the Utility was without power at many wells and lift stations for 10 days. The water system was able to stay operational due to the new generator installed at the new wellfield that was brought online earlier this year. Utility staff, working around the clock, moved a portable generator around to all other lift stations to prevent them from overflowing and/or backing up into resident's homes.

It was identified that the Utility needs to be better prepared for future emergencies. Though the Utility had a few generators in place prior to Hurricane Fiona and the water and sewer system were not compromised, more resilience needs to be built into the system. The Utility has plans to purchase additional generators to be installed at various sites and having access to an emergency supply of fuel to run the generators. The Utility is also moving forward with a new master plan to identify vulnerabilities in the water and sewer systems that could be affected by extreme weather events and climate change.