Water & Sewer Utility

WATER ANAYLSIS REPORT 2023

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	15	0	0	0	0	0
February	24	0	2	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	12	0	0	0	0	0
October	22	0	0	0	0	0
November	12	0	0	0	0	0
December	12	1	0	0	0	0
Total	180	1	2	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 February 2023, a precautionary boil order was issued for area around Lakeview Drive when a contractor conducting a repair for Chateau Estates broke water and sewer lines and as a precaution Provincial Department of Environment has requested a boil order until water samples have been obtained. Notification of the boil order was hand delivered to each residence and notice was posted on social media until boil order was lifted.

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	2	6	14	3	7	1	0	0
February	3	1	2	0	5	11	3	2	0	0	0
March	3	1	2	0	4	10	0	3	0	0	0
April	3	1	2	1	4	11	1	4	0	0	0
May	3	1	2	1	5	12	2	1	0	0	0
June	3	1	2	0	4	10	1	4	0	1	0
July	3	1	2	0	4	10	4	2	0	0	0
August	3	1	2	8	6	20	1	13	5	1	0
September	3	1	2	0	4	10	1	4	0	0	0
October	6	2	4	0	8	20	9	2	0	0	0
November	3	1	2	1	5	12	6	2	0	0	0
December	3	1	2	0	4	10	1	0	0	0	0
Total	39	13	26	13	59	150	32	44	6	2	0

The Town of Cornwall uses primary and secondary disinfection processes in maintaining safe drinking water systems.

- ***Primary disinfection*** is a contiguous part of the treatment process and is intended to kill or inactivate (i.e.: render non-infectious) pathogenic microorganisms that may be present in the source water before secondary disinfection takes place.

- ***Secondary disinfection*** (distribution system disinfection) is intended to protect the distribution system from re-contamination. It is the maintenance of a residual of disinfectant throughout the distribution system to prevent re-growth of microorganisms in the system as well as to kill or inactivate microorganisms that may enter the distribution system. Chlorine is the most commonly used water disinfectant for secondary (residual) disinfection.

At Meadowbank, Northgate, East Wiltshire and Main Street well locations chlorine is added to the water distribution system and with sufficient contact time to inactivate any microbiological contaminates from the ground water sources. At River Point the Town uses a UV disinfection system along with chlorine disinfection together to provide safe drinking water.

In 2023, the Town of Cornwall pumped an average of 2,300 cubic meters of water per day. During the summer months the utility pumped an average of 2,450 cubic meters of water per day.

Pesticide Monitoring Program Results

Samples were collected from wells in 2021-2023 as part of the provincial annual pesticide monitoring program. 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.

PESTICIDE ANALYSIS FOR DRINKING WATER REPORT
Samples with detections from 2021 to 2023

Municipal System: Cornwall Municipality

Results:

Site Name	Date Sampled	Parameter	Concentration Detected	Safe Drinking Water Limit	Units	Safe Drinking Water Limit Source
Cornwall East Wiltshire Municipal	11/29/2022	Clothianidin	0.05	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	11/29/2022	Chlorantraniliprole	0.02	10100	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	11/29/2022	Clothianidin	0.04	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall East Wiltshire Municipal	02/17/2022	Clothianidin	0.03	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	02/17/2022	Clothianidin	0.03	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	02/17/2022	Propiconazole	0.04		ng/ml	
Cornwall East Wiltshire Municipal	02/17/2022	Clothianidin	0.03	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	02/17/2022	Clothianidin	0.03	300	ng/ml	Human Health Reference Values for Pesticides in Drinking Water Sources
Cornwall Northgate Municipal	02/17/2022	Propiconazole	0.04		ng/ml	

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 16, 2023, 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						
nical	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	153	167	88.7	90.7	94.9	93.3
Arsenic	0.001	0.001	0.001	0.001	0.002	0.002
Barium	0.08256	0.8649	0.3637	0.0985	0.6616	0.6359
Calcium	39.94	42.31	22.35	22.83	27.36	24.86
Chloride	33.7	35.6	9.8	10.1	14.6	13.8
Copper	<0.002	<0.002	0.005	0.005	0.006	0.004
Iron	0.005	0.003	<0.002	<0.002	<0.002	<0.002
Lead	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001
Magnesium	21.03	21.75	11.34	11.22	13.68	12.57
Manganese	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Nitrate-N	3.5	1.9	3.1	2.8	5.7	4.6
pH	7.8	7.8	8.1	8.1	8.2	8.2
Phosphorus	0.04	0.04	0.05	0.08	0.04	0.04
Potassium	1.61	1.53	1.36	1.08	1.2	1.2
Selenium	0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium	8.6	10.54	4.56	4.19	4.37	4.41
Sulfate	9.76	7.49	6.91	6.66	10.19	7.35
Uranium	0.0028	0.0025	0.0033	0.0001	0.0009	0.0018
Zinc	<0.002	0.002	0.002	0.002	0.002	0.025
Total Hardness	186.3	195.2	102.5	103.2	124.6	113.8

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	112	117	118	130	141	--	--
Arsenic	0.003	0.004	0.004	0.001	0.0001	0.01	--
Barium	0.6009	0.35	0.2932	0.3288	0.2237	1.0	--
Calcium	23.58	27.29	22.37	34.24	34.15	--	--
Chloride	57.9	119.1	26.9	20.3	18	--	≤250
Copper	0.004	0.004	0.005	0.011	0.014	--	≤1.0
Iron	<0.002	0.003	<0.002	<0.002	<0.0002	--	≤0.3
Lead	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.01	--
Magnesium	13.41	16.9	11.53	17.52	16.89	--	--
Manganese	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	≤0.05
Nitrate-N	1.7	1.5	2	5.7	3.4	10.0	--
pH	8.3	8.3	8.2	7.7	7.8	--	6.5-8.5
Phosphorus	<0.02	0.02	0.02	0.05	0.08	--	--
Potassium	2.02	2.24	1.36	1.43	1.42	--	--
Selenium	0.004	0.005	0.004	0.0002	0.0002	0.05	--
Sodium	33.35	67.31	24.01	6.31	8.58	--	≤200
Sulfate	7.43	16.4	6.11	6.98	6.98	--	≤500
Uranium	0.0137	0.0128	0.0086	<0.0002	0.0001	0.02	--
Zinc	0.004	0.003	0.002	0.01	0.012	--	≤5
Total Hardness	114.1	137.1	103.3	157.6	154.8	--	≤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.

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	15	<10	170	N/A	N/A	N/A
February	N/A	N/A	N/A	N/A	N/A	N/A
March	15	<10	<2	15	16	<2
April	N/A	N/A	N/A	N/A	N/A	N/A
May	N/A	N/A	N/A	N/A	N/A	N/A
June	10	<10	<2	14	<10	33
July	N/A	N/A	N/A	N/A	N/A	N/A
August	N/A	N/A	N/A	N/A	N/A	N/A
September	10	<10	<2	12	<10	<2
October	N/A	N/A	N/A	N/A	N/A	N/A
November	N/A	N/A	N/A	N/A	N/A	N/A
December	6	<10	<2	22	<10	13

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 2023, 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.

The Utility took over control of a new lift station in West River Estates Subdivision that allows for new homes to be constructed in Phase 3 of the subdivision.

New Water Tower

The Utility has been working on planning and designing a new water tower for the Town of Cornwall that is expected to be constructed in late 2024. The new water tower will provide additional water storage for the town as well as improve water pressure in higher elevations.