

Rockland Drinking Water System

Waterworks # 210000639
System Category – Large Municipal Residential

Annual Water Report

Prepared For:
The Corporation of the City of Clarence Rockland

Reporting Period of January 1st – December 31st 2022

Issued: January 24th, 2023

Revision: 1

Operating Authority:



This report has been prepared to satisfy the annual reporting requirements in O.Reg 170/03 Section 11 and Schedule 22

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Report Availability

This system serves more than 10,000 residents therefore the annual reports shall be made available publically to residents of The Corporation of the City of Clarence-Rockland. Notification should be made available on the municipal website and copies provided free of charge if requested at the Municipal Office located at, 1560 Laurier St. Rockland On. K4K 1P7.

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 - Inspection completed on December 20 th 1 Required action identified - resolved
Ministry of Labour Inspections	0
QEMS External Audit	Off-Site Plan Audit – No issues identified On-Site Re-Accreditation Audit – 9 OFIs identified
AWQIs	2 – PBWA due to watermain breaks
Non-Compliance	2 – Missed samples, TSS and NDMA
Community Complaints	0
Watermain Breaks & Service Repairs	4

System Process Description

Raw Source

Raw water source for the Rockland Drinking Water System is the Ottawa River as per Permit to Take Water #3168-B2JK5N expiring on June 30th 2028. Raw water intake facility consists of a 630mm HDP# Series 45 pipe extending approximately 126 meters from the low lift pumping station into the Ottawa river. Water is conveyed to the water treatment facility by one of 3 vertical turbine pumps.

Treatment

The Clarence Rockland Water Treatment Plant is a 13,500 m³/day conventional filtration type treatment plant with Actiflo[®] pre-treatment. The Plant is located at 125 Edwards Street in Rockland and services the City of Clarence Rockland and five Hamelets(Clarence Creek, St-Pascal Baylon, Hammond, Bourget and Cheney. The facility consist of the following components; Raw water intake obtained from the Ottawa River. A low lift pumping station including three vertical turbine pumps. Water is directed to two Actiflo[®] units followed by two rapid dual media gravity filters of sand and anthracite. Filtered water is disinfected and passed through a UV system consisting of two units. A baffled chlorine contact tank of

233.5 m³ and two reservoirs having a total capacity of 471 m³. Secondary disinfection is achieved via chloramination at the discharge of the plant.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hydroxide 50%	Pre and Post pH adjustment	Sodrox
Aluminium Chloride Hydroxide Sulphate (PAX-XL6)	Coagulant	Kemira
Polymer - Praestol DW27AG previously Magnafloc LT27AG	Flocculation Agent	BASF/Solenis
Sodium Hypochlorite	Post Disinfection	UBA
Ammonium Sulphate	Secondary Disinfection “Chloramination”	Canada Colors & Chemicals

Distribution

Water is pumped into the distribution system by four centrifugal high lift pumps. A Booster Station with three centrifugal pumps is used for the water demand of the Hamlets. The rate of water supplied is based on the three elevated water tower storage tanks and demand from the City of Clarence-Rockland and its Hamlets.

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Issue
June 8, 2022	158-621	Category 2 watermain Break, OCWA issued a precautionary boil water advisory, break repaired on June 9, PBWA rescinded on June 10.
December 12, 2022	160-393	Issued a PBWA due to a watermain break on transmission main from Cheney to Limoges, potential for a low pressure, rescinded on December 16.

Non-Compliance

Legislation	requirement(s) system failed to meet	Details	Corrective Action	Status
MDWL	Sludge settling tank, test for suspended solids and total chlorine residual	Missed Sample, May	Reminded staff, requested samples be taken at the beginning of the month so that if they are forgotten there are still 3 weeks left to take it	Complete
MDWL	Quarterly NDMA samples from the furthest point in the distribution	Q3 NDMA sample taken in wrong quarter	Meeting with staff, made an additional sample calendar in one page, organizing coolers with required bottles in them	Complete

Non-Compliance Identified in a Ministry Inspection:

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
No non-compliances identified in the inspection				

Flows

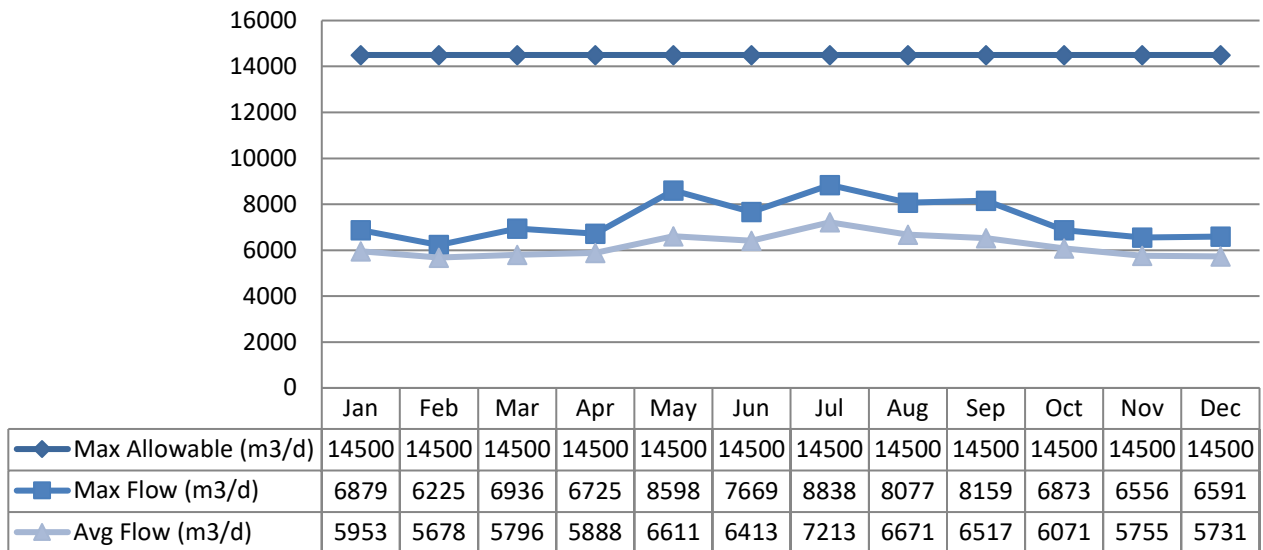
The Rockland Drinking Water System is operating on average under half the rated capacity. During summer peak demands both actiflo units are required to work in order to meet demand and fire capacity levels in the water tower reservoirs.

Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water Ontario Regulation 387/04. Water Taking and Transfers requires all water takers to report daily water taking amounts to the Water Taking Reporting System (WTRS) electronic database. The 2022 Raw Flow Data was submitted to the Ministry electronically under permit PTTW #3168-B2JK5N. The confirmation and a copy of the data that was submitted are attached in Appendix A.

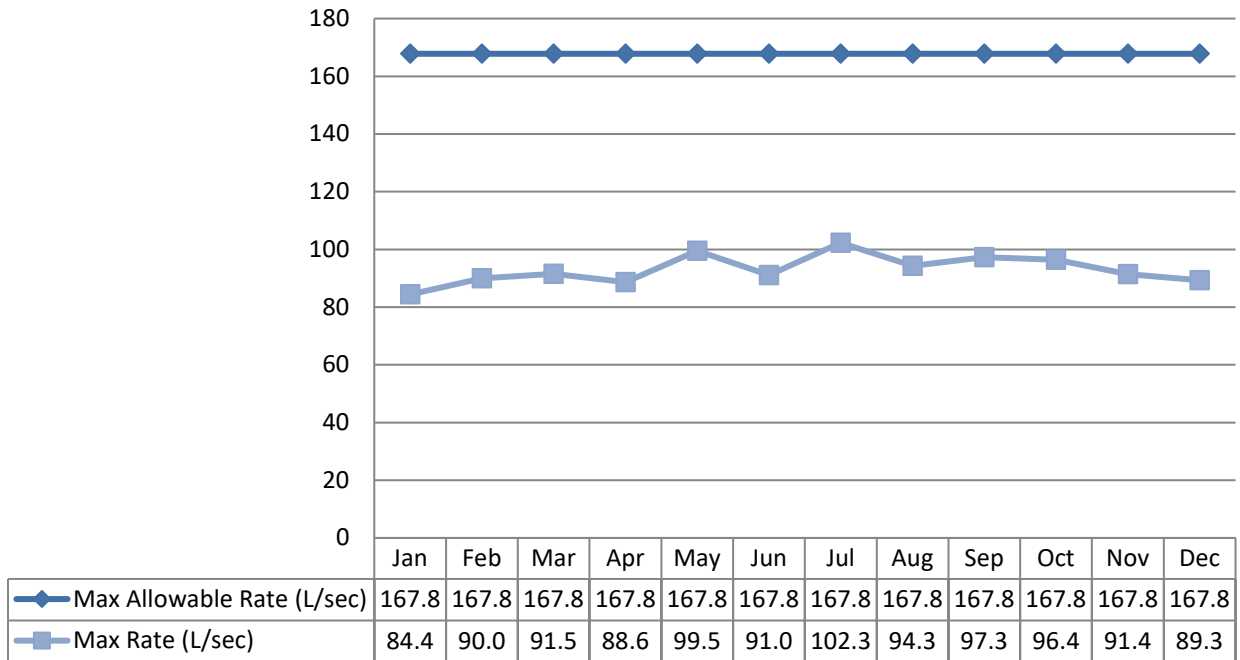
Total Monthly Flows (m3/d)

Max Allowable PTTW 14500 m3/d



Monthly Rated Flows (L/s)

Max allowable rate - PTTW 167.8 L/sec

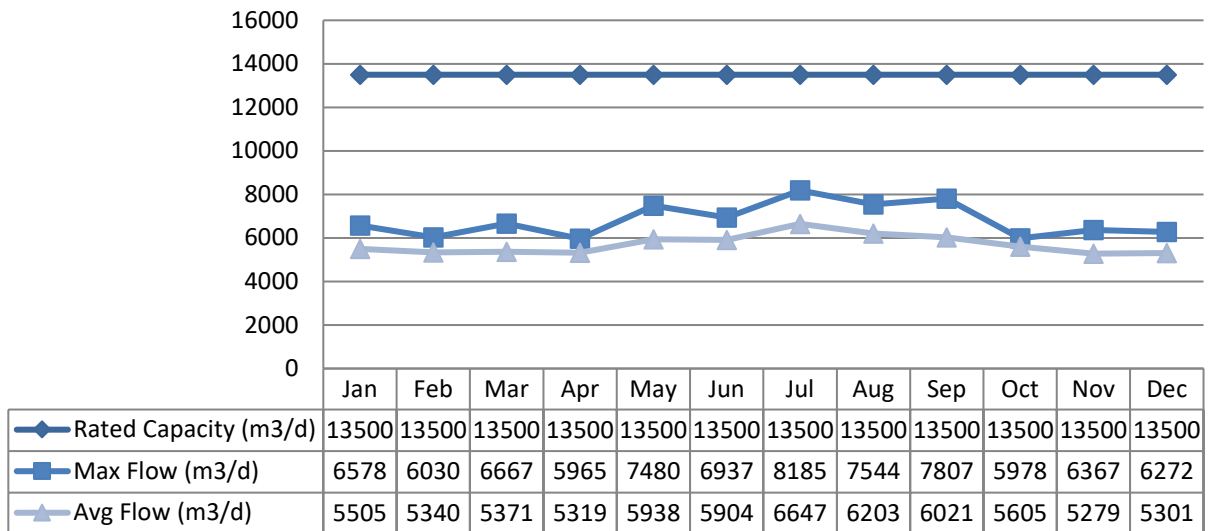


Treated Water Flows

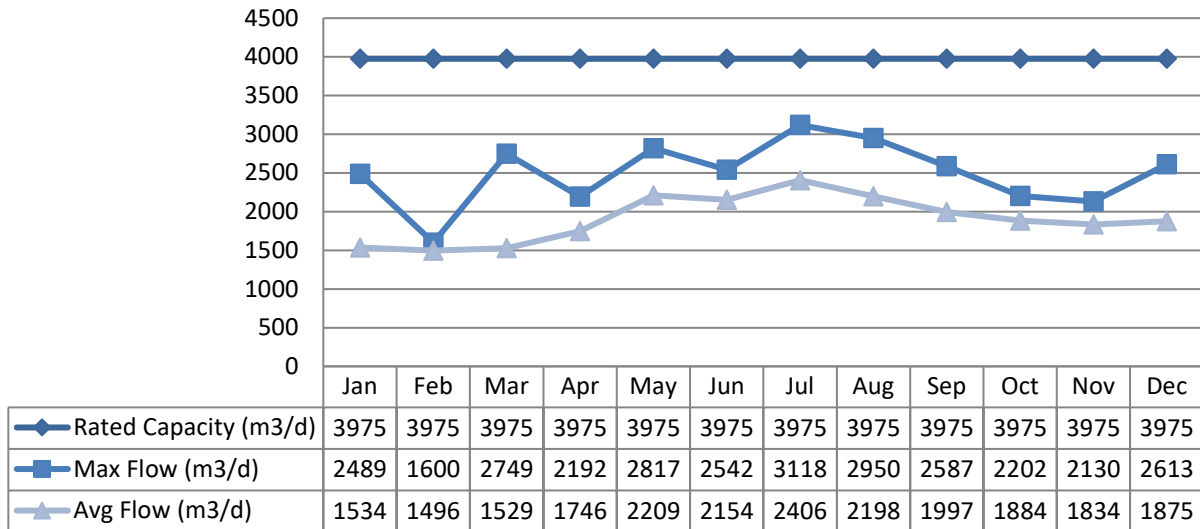
The Treated Water flows are regulated under the Municipal Drinking Water Licence Number: 175-101
 Issue Number: 5

Monthly Rated Flows

Rated Capacity – MDWL WTP 13,500m³/day



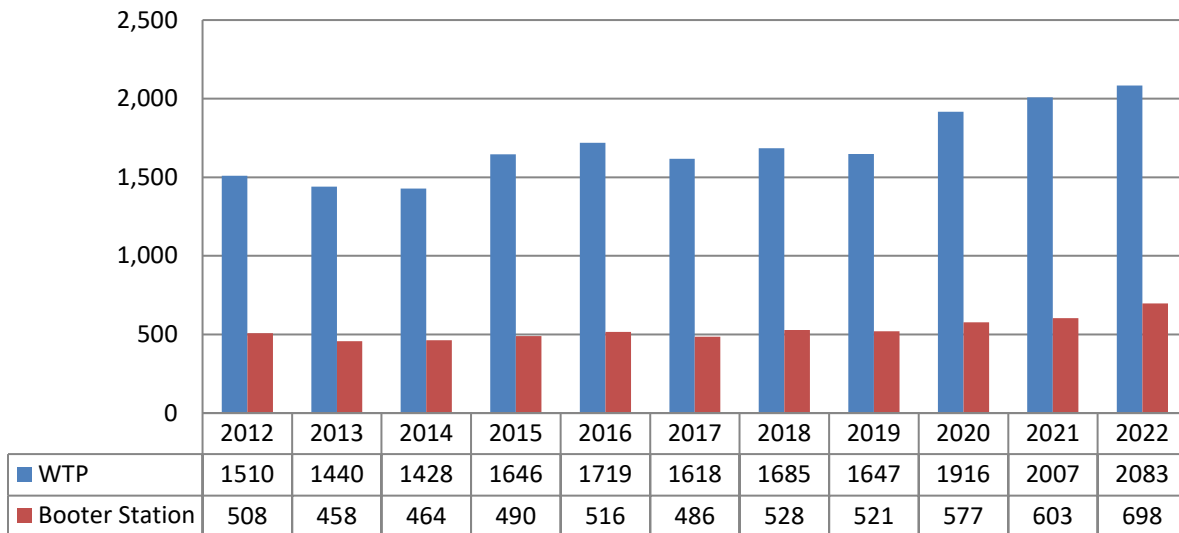
Rated Capacity – MDWL Booster Pumping Station 3,975 m3/day



Annual Total Flow Comparison

Please note that the booster station flows are included in the treated water WTP flows, and all flows are represented here as megalitres.

Total Annual ML



Regulatory Sample Results Summary

Microbiological Testing

	No. of Samples Collected	Range of E.Coli Results		Range of Total Coliform Results		Range of HPC Results	
		Min	Max	Min	Max	Min	Max
Raw Water	52	0	98	0	2000		
Treated Water	52	0	0	0	0	2	2
Distribution Water	365	0	0	0	0	2	2

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) - RW	155	1.2	37
Turbidity, On-Line (NTU) - TW	8760	0.09	0.29
Turbidity, On-Line (NTU) – Filter #1	8760	0.08	0.6
Turbidity, On-Line (NTU) – Filter #2	8760	0.08	0.48
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.56	2.91
Combined Chlorine Secondary Disinfection, On-Line (mg/L) – TW	8760	0.94	2.97
Combined Chlorine Residual, On-Line (mg/L) – DW	8760	0.4	2.7

NOTE: spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O.Reg 170/03

Inorganic Parameters

These parameters are tested as a requirement under 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O.Reg 169/03
- <MDL = Below the laboratory detection level

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2022/09/15	<MDL 0.1	6.0	No	No
Arsenic: As (ug/L) - TW	2022/09/15	0.3	25.0	No	No
Barium: Ba (ug/L) - TW	2022/09/15	11.0	1000.0	No	No
Boron: B (ug/L) - TW	2022/09/15	<MDL 5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2022/09/15	<MDL 0.01	5.0	No	No
Chromium: Cr (ug/L) - TW	2022/09/15	<MDL 2.0	50.0	No	No
Mercury: Hg (ug/L) - TW	2022/09/15	<MDL 0.02	1.0	No	No
Selenium: Se (ug/L) - TW	2022/09/15	<MDL 1.0	50.0	No	No
Uranium: U (ug/L) - TW	2022/09/15	<MDL 0.05	20.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Additional Inorganics					
Fluoride (mg/L) - TW	2019/04/12	<MDL 0.1	1.5	No	No
Nitrite (mg/L) - TW	2022/02/22	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/06/28	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/09/20	0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/12/13	<MDL 0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/02/22	0.3	10.0	No	No
Nitrate (mg/L) - TW	2022/06/28	0.2	10.0	No	No
Nitrate (mg/L) - TW	2022/09/20	0.2	10.0	No	No
Nitrate (mg/L) - TW	2022/12/13	0.3	10.0	No	No
Sodium: Na (mg/L) - TW	2019/04/12	25.4	20*	N/A	N/A

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified mg/L when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O.Reg 170/03. This system is under reduced sampling. No plumbing samples were collected.

Distribution System	Number of Sampling Points	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	4	8	34	46	N/A	N/A
pH	4	8	7.3	7.6	N/A	N/A
Lead (mg/L)	4	8	0.02	0.11	10	N/A

Organic Parameters

These parameters are tested annually as a requirement under O.Reg 170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
TREATED WATER					
Alachlor (ug/L) - TW1	2022/09/15	<MDL 0.3	5.0	No	No
Azinphos-methyl (ug/L) - TW1	2022/09/15	<MDL 1.0	20.0	No	No
Benzene (ug/L) - TW1	2022/09/15	<MDL 0.5	1.0	No	No
Benzo(a)pyrene (ug/L) - TW1	2022/09/15	<MDL 0.006	0.01	No	No
Bromoxynil (ug/L) - TW1	2022/09/15	<MDL 0.5	5.0	No	No
Carbaryl (ug/L) - TW1	2022/09/15	<MDL 3.0	90.0	No	No
Carbofuran (ug/L) - TW1	2022/09/15	<MDL 1.0	90.0	No	No
Carbon Tetrachloride (ug/L) - TW1	2022/09/15	<MDL 0.2	2.0	No	No
Chlorpyrifos (ug/L) - TW1	2022/09/15	<MDL 0.5	90.0	No	No
Diazinon (ug/L) - TW1	2022/09/15	<MDL 1.0	20.0	No	No

Dicamba (ug/L) - TW1	2022/09/15	<MDL 1.0	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW1	2022/09/15	<MDL 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW1	2022/09/15	<MDL 0.5	5.0	No	No
1,2-Dichloroethane (ug/L) - TW1	2022/09/15	<MDL 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW1	2022/09/15	<MDL 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW1	2022/09/15	<MDL 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW1	2022/09/15	<MDL 0.2	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW1	2022/09/15	<MDL 1.0	100.0	No	No
Diclofop-methyl (ug/L) - TW1	2022/09/15	<MDL 0.9	9.0	No	No
Dimethoate (ug/L) - TW1	2022/09/15	<MDL 1.0	20.0	No	No
Diquat (ug/L) - TW1	2022/09/15	<MDL 5.0	70.0	No	No
Diuron (ug/L) - TW1	2022/09/15	<MDL 5.0	150.0	No	No
Glyphosate (ug/L) - TW1	2022/09/15	<MDL 25.0	280.0	No	No
Malathion (ug/L) - TW1	2022/09/15	<MDL 5.0	190.0	No	No
Metolachlor (ug/L) - TW1	2022/09/15	<MDL 3.0	50.0	No	No
Metribuzin (ug/L) - TW1	2022/09/15	<MDL 3.0	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW1	2022/09/15	<MDL 0.5	80.0	No	No
Paraquat (ug/L) - TW1	2022/09/15	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW1	2022/09/15	<MDL 0.05	3.0	No	No
Pentachlorophenol (ug/L) - TW1	2022/09/15	<MDL 0.2	60.0	No	No
Phorate (ug/L) - TW1	2022/09/15	<MDL 0.3	2.0	No	No
Picloram (ug/L) - TW1	2022/09/15	<MDL 5.0	190.0	No	No
Prometryne (ug/L) - TW1	2022/09/15	<MDL 0.1	1.0	No	No
Simazine (ug/L) - TW1	2022/09/15	<MDL 0.5	10.0	No	No
Terbufos (ug/L) - TW1	2022/09/15	<MDL 0.5	1.0	No	No
Tetrachloroethylene (ug/L) - TW1	2022/09/15	<MDL 0.5	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW1	2022/09/15	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW1	2022/09/15	<MDL 10.0	230.0	No	No
Trichloroethylene (ug/L) - TW1	2022/09/15	<MDL 0.5	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW1	2022/09/15	<MDL 0.2	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L) - TW1	2022/09/15	<MDL 10.0	100.0	No	No
Trifluralin (ug/L) - TW1	2022/09/15	<MDL 0.5	45.0	No	No
Vinyl Chloride (ug/L) - TW1	2022/09/15	<MDL 0.2	1.0	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	2022/01/01	40.0	100.0	No	No
HAA Total (ug/L) Annual Average - DW	2022/01/01	27.375	80.0*	No	No

*The MAC for HAA Total (Based on a RAA of quarterly results) came into effect on January 1, 2020.

MAC = Maximum Allowable Concentration as per O.Reg 169/03

BDL = Below the laboratory detection level

Additional Legislated Samples

Summary of additional testing and sampling carried out in accordance with the requirement of an approval or order.

Date of order or Municipal Drinking Water Licence	Parameter	Date Sampled	Result	Total Chlorine Residual	Unit of Measure
Municipal Drinking Water Licence #175-101	Suspended Solids	Jan 31, 2022	4	0.0	mg/L
		Feb 22, 2022	5	0.0	mg/L
		Mar 29, 2022	7	0.0	mg/L
		Apr 28, 2022	8	0.0	mg/L
		May Missed	N/A	N/A	mg/L
		Jun 28, 2022	9.5	0.0	mg/L
		Jul 26, 2022	9	0.0	mg/L
		Aug 16, 2022	10	0.0	mg/L
		Sep 27, 2022	4	0.0	mg/L
		Oct 25, 2022	10	0.0	mg/L
		Nov 29, 2022	4	0.0	mg/L
		Dec 20, 2022	6	0.0	mg/L
		Annual Average	6.95	-	mg/L

Major Maintenance Summary

Water Treatment Plant Maintenance

Date	Details
2022	Various repairs, modifications, and upgrades to the PLC and SCADA system throughout the 2022 reporting year
March 9	Annual lifting/safety device inspections
May 21	Major storm event, power failures, no service interruption anywhere, staff monitoring all locations
April 7	ESA inspection done, no major issues noted
May 5	Back Flow Preventers inspection done
May 31	Annual inspection and service of chemical feed pumps
July 1	Flow meter calibrations
July 25	5 year raw water intake inspection
November 9	Check BW # 46, fix light in coagulant area
November 10	Annual maintenance and reference checks on UV system

November 16	Annual fire extinguisher inspection
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Distribution System Maintenance

Date	Location Reference	Details
January 25	Bourget distribution	Service leak at 2211 Laval, repaired stand post
February 4	Rockland distribution	Repaired two hydrants on Giroux and St-Jacques
March 28	Rockland distribution	Repaired water service leak at 623 St-Louis street
April 11	Clarence-Rockland distribution	Water flow valve opened to Limoges, consumption will be monitored
April 22	Rockland distribution	2" water service repair done on Montée Outaouais
April 28	Bourget distribution	Pressure Regulating Valve on Marcil street by-passed permanently to allow better flow towards Cheney (Limoges)
May 18	Rockland distribution	Chlorination and sampling done on new water main in Morris village Stage 5, phase E
June 8	Rockland distribution	Water main break on Chamberland street due to contactor doing work on culvert hitting pipe with excavator. Lost pressure momentarily until valves could be closed, Preventive Boil Water Advisory issued until received sample results, came back all clear, MECP and MOH notified.
June 20	Clarence-Rockland distribution	Repair 4 hydrants.
July-September	Clarence Rockland distribution (Nation)	Recorded water flows to Limoges from Cheney form WTP and made adjustments
July-September	Rockland distribution	Water main rehab on Laurier street
July 19	Rockland distribution	Repaired 6 " water main at Arnco construction site near culvert replacement
August 11	Rockland distribution	New water main extension chlorination/sampling in Morris village Phase 5 E
August 18	Clarence-Rockland distribution	Contractor in to paint new hydrants added in the past year
August 29	Rockland distribution	Landrock, installed two new valves and connected water main extension, OCWA coordinated chlorination/sampling/flushing
September 9	Bourget distribution	Repaired a water main valve on Etienne street in Bourget with

September 9	Rockland distribution	Coordinated water main re-lining project on Charron/St-Anne street with city, PBWA for temporary service implemented.
September 26	Bourget distribution	Repaired water main at 3632 Champlain in Bourget
October 3	Laurier	Phase 1 Robert Ex. – Super chlorinate
October 4	Giroux	Install 2 new valves
October 15	1740 Laurier	Leak on temporary main
October 22 & 24	Laurier	Flush new watermain Phase 2 Laurier street, take sample #1 and 2
October 25 & 26	Landrock / Laurier	Samples 1 & 2
October/ November	Distribution	Flush and winterize hydrants
November 3	Laurier street	Reopen all valves, unidirectional flushing
November 7	Distribution	Gareau/Laurier - New valve installed Cheney – Grand Tronc - fix hydrant
November 8 & 9	Cheney-Danyka	Super chlorination, flushed and sampled
November 11	2055 Victoria street	Service leak on owners side of property
November 15	Laurier street	Raise hydrant

Appendix A - WTRS Data and Submission Confirmation



Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 3168-B2JK5N
Permit Holder: THE CORPORATION OF THE CITY OF CLARENCE-ROCKLAND.
Received on: Jan 27, 2023 1:54 PM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

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