

Wendover Drinking Water System

Waterworks # 260004293
System Category – Large Municipal Residential

Annual Water Report

Prepared For:
The Corporation of the Township of Alfred & Plantagenet

Reporting Period of January 1st – December 31st 2022

Issued: January 26, 2023

Revision: 0

Operating Authority:



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

Table of Contents

Annual Water Report	1
Report Availability	1
Compliance Report Card	1
System Process Description	1
Raw Source	1
Treatment.....	2
Treatment Chemicals used during the reporting year:.....	2
Distribution.....	2
Summary of Non-Compliance	2
Adverse Water Quality Incidents.....	2
Non-Compliance	2
Non-Compliance Identified in a Ministry Inspection:.....	2
Flows	3
Raw Water Flows.....	3
Total Monthly Flows (m3/d).....	3
Treated Water Flows	4
Monthly Rated Flows	4
Annual Total Flow Comparison	5
Regulatory Sample Results Summary	5
Microbiological Testing.....	5
Operational Testing	5
Inorganic Parameters	6
Schedule 15 Sampling:	7
Organic Parameters.....	7
Additional Samples	8
Major Maintenance Summary	9
Water Treatment Plant Maintenance	9
Distribution Maintenance.....	9
Appendix A - WTRS Data and Submission Confirmation	A

Report Availability

This system serves less than 10,000 residents. The annual reports will be made available publically to residents of The Corporation of the Township of Alfred & Plantagenet. Notification should be made available on the municipal website and copies provided free of charge if requested at the Municipal Office located at 205 Old Highway 17 PO. Box 350 Plantagenet ON K0B 1L0.

Compliance Report Card

Compliance Event	# of Events
Ministry of Environment Inspections	1 – On-site Inspection completed on October 7, 2022 No issues Identified
Ministry of Labour Inspections	0
QEMS External Audit	Off-Site Plan Audit – 1 OFI On-Site Re-Accreditation Audit - 0 Issues Identified
AWQI's/BWA	1 – Sodium Exceedance
Non-Compliance	0
Community Complaints	0
Spills	0
Watermain Breaks & Repairs	0

System Process Description

Raw Source

Raw water source for the Wendover Drinking Water System is the Ottawa River as per Permit to Take Water #96-P-4096. Raw water intake consists of a 195 m long x 200 mm diameter long polyethylene pipe Intake end is equipped with coarse mesh screen. Piping from the high lift pumps provided to facilitate intake flushing. The low lift pumping station located on du Quai Ave. is equipped with three (3) horizontal centrifugal pumps (two duty, one standby), each rated at 10.5 L/s at 21 m Total Dynamic Head (TDH). A 200 mm diameter raw water transmission line from the low lift pumping station conveys raw water to the water treatment plant

Treatment

The Wendover Drinking Water System is a surface water treatment facility, rated at a maximum daily flow of 1806 m³/day for raw water higher than 1 degree Celsius and 1517 m³/day for raw water temperatures below 1 degree Celsius. The water treatment plant consists of the following components: a dual train packaged conventional filtration plant consisting of in-line mixing, coagulation, flocculation, sedimentation and filtration. Disinfection is achieved by chlorination and pH control by soda ash.

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Soda Ash	pH adjustments	Univar
Aluminium Hydroxide Sulphate (PAS-08)	Coagulant	Kemira
Polymer - Norfloc 127H previously called Magnafloc LT27AG	Flocculation Agent	BASF
Sodium Hypochlorite	Post Disinfection	UBA

Distribution

Water is pumped by two (2) vertical turbine high lift pumps (one duty; one standby) each rated at 19.5 L/s at 50 m TDH to the elevated storage tank with a capacity of 1940m³. Water is then conveyed to the village of Wendover.

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Parameter	Value (mg/L)	Limit (mg/L)	Legislation
September 19, 2022	16003	Sodium	24.2 23.1	20	169/03

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
There were no non-compliance issues reported during the reporting period.				

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
There were no non-compliance issues identified during the reporting period.				

Flows

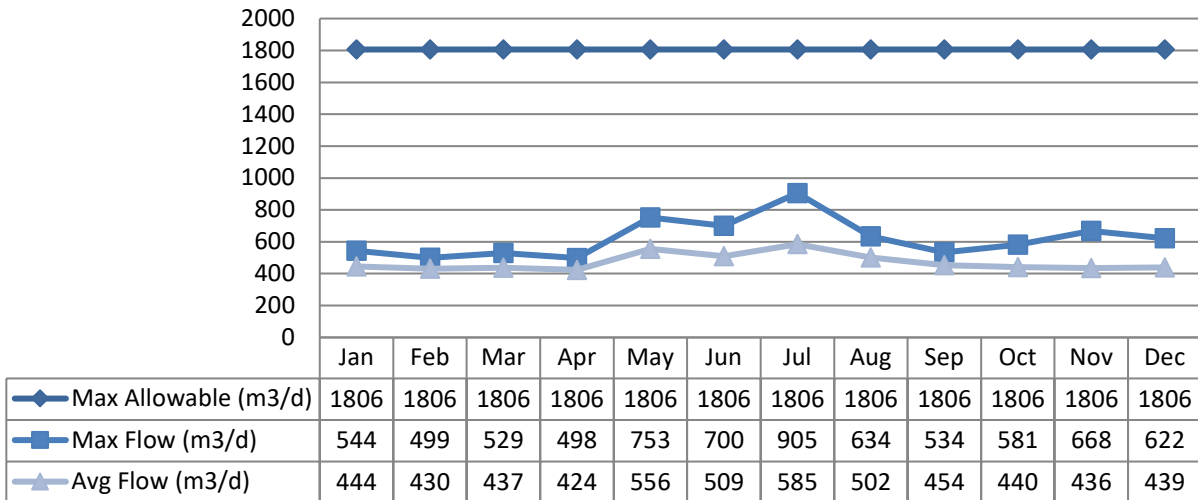
Having a 2022 annual average day flow of 471 m³/day, with respect to treated water, the Wendover Drinking Water System is operating at less than one third of its rated capacity.

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. 2022 Raw Flow Data was submitted to the Ministry electronically under permit #96-P-4096. The confirmation and a copy of the data that was submitted are attached in Appendix B.

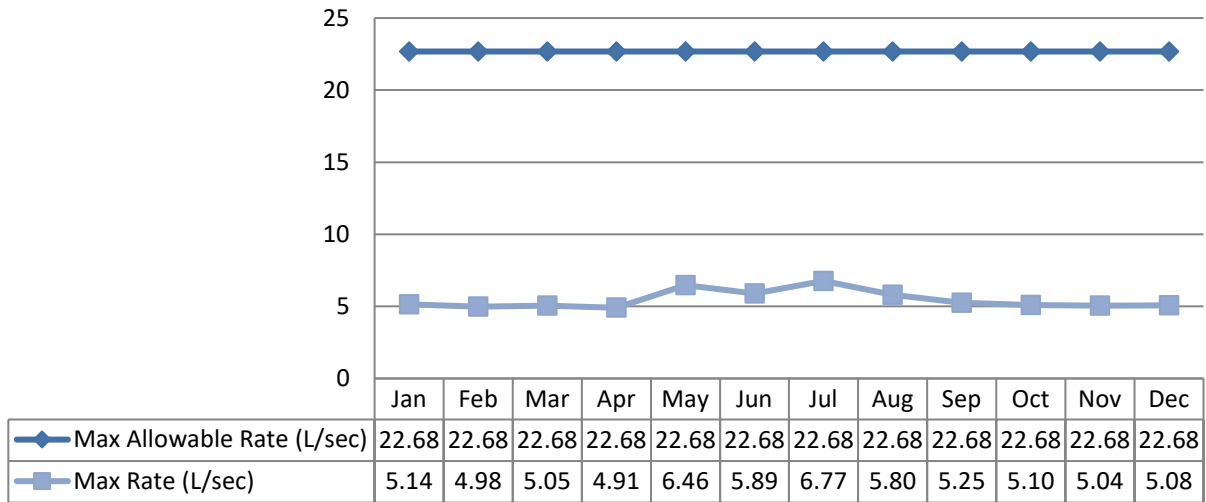
Total Monthly Flows (m3/d)

Max Allowable PTTW 1806 m3/d



Monthly Rated Flows (L/s)

Max allowable rate - PTTW 22.68 L/sec

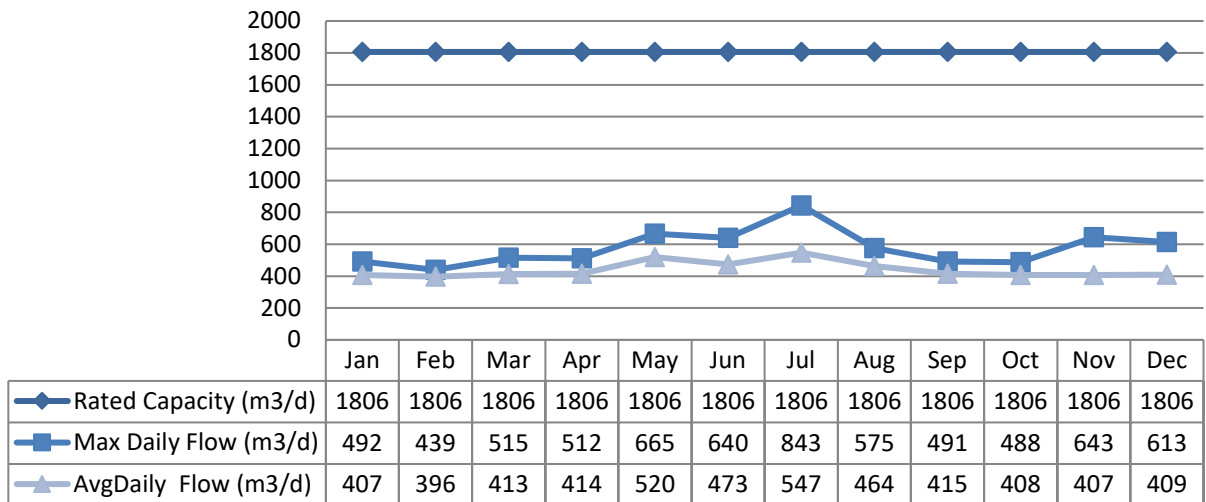


Treated Water Flows

The Treated Water flows are regulated under the Municipal Drinking Water Licence Number: 169-102 Issue Number: 2

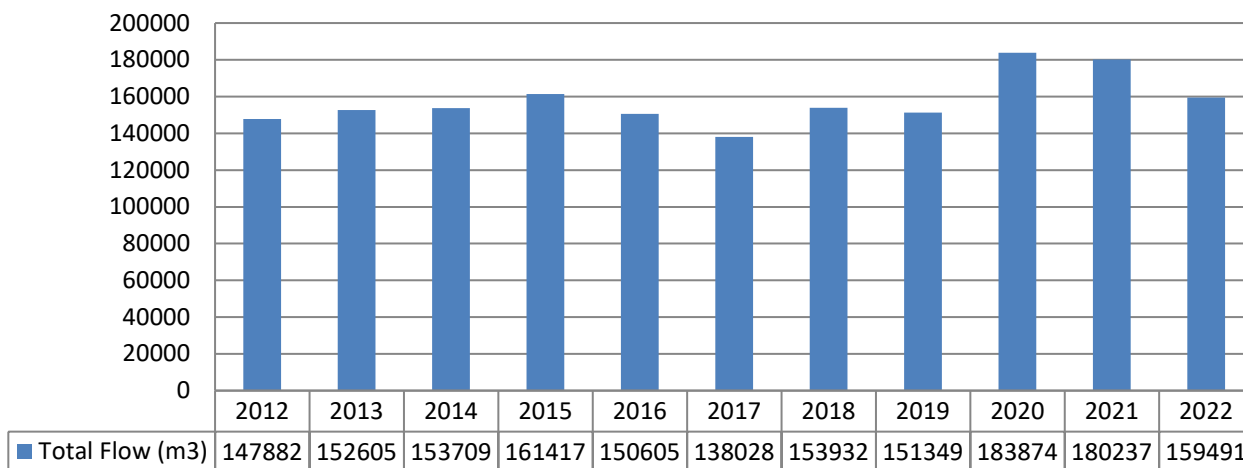
Monthly Rated Flows

Rated Capacity – MDWL WTP 1806 m3/d for raw water temperature >1°C
1517 m3/d for raw water temperature <1°C



Annual Total Flow Comparison

Total Annual m3



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	63	4	3600		
Treated Water	52	0	0	0	0	<2	2
Distribution Water	156	0	0	0	0	<2	8

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity, In-House (NTU) – RW	184	2.3	10.4
Turbidity, In-House (NTU) – TW	249	0.04	0.18
Turbidity, On-Line (NTU) – Filter #1	8760	0.01	0.3
Turbidity, On-Line (NTU) – Filter #2	8760	0.01	0.42
Free Chlorine Residual, On-Line (mg/L) – TW	8760	0.73	3.15
Free Chlorine Residual, On-Line (mg/L) – DW	8760	0.80	2.99

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
- BDL = 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	0.2	25.0	No	No
Barium: Ba (ug/L) - TW	2022/09/15	10.0	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
Additional Inorganics					
Fluoride (mg/L) - TW	2019/01/17	<0.1	1.5	No	No
Nitrite (mg/L) - TW	2022/01/10	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/04/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/07/04	<MDL 0.1	1.0	No	No
Nitrite (mg/L) - TW	2022/10/11	0.1	1.0	No	No
Nitrate (mg/L) - TW	2022/01/10	0.3	10.0	No	No
Nitrate (mg/L) - TW	2022/04/04	0.4	10.0	No	No
Nitrate (mg/L) - TW	2022/07/04	0.2	10.0	No	No
Nitrate (mg/L) - TW	2022/10/11	0.2	10.0	No	No
Sodium: Na (mg/L) - TW	2022/09/15	24.20	20*	N/A	N/A
Sodium: Na (mg/L) - TW	2022/09/20	23.10	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 (mg/L)	Number of Exceedances
			Minimum	Maximum		
Alkalinity (mg/L)	3	5	39	44	N/A	N/A
pH	3	5	6.8	7.4	N/A	N/A
Lead (mg/L)	3	5	.00002	.00004	0.01	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) - TW	2022/09/15	<MDL 0.3	5.0	No	No
Azinphos-methyl (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Benzene (ug/L) - TW	2022/09/15	<MDL 0.5	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2022/09/15	<MDL 0.006	0.01	No	No
Bromoxynil (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
Carbaryl (ug/L) - TW	2022/09/15	<MDL 3.0	90.0	No	No
Carbofuran (ug/L) - TW	2022/09/15	<MDL 1.0	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2022/09/15	<MDL 0.2	2.0	No	No
Chlorpyrifos (ug/L) - TW	2022/09/15	<MDL 0.5	90.0	No	No
Diazinon (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Dicamba (ug/L) - TW	2022/09/15	<MDL 1.0	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/09/15	<MDL 0.5	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/09/15	<MDL 5.0	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2022/09/15	<MDL 1.0	100.0	No	No
Diclofop-methyl (ug/L) - TW	2022/09/15	<MDL 0.9	9.0	No	No
Dimethoate (ug/L) - TW	2022/09/15	<MDL 1.0	20.0	No	No
Diquat (ug/L) - TW	2022/09/15	<MDL 5.0	70.0	No	No
Diuron (ug/L) - TW	2022/09/15	<MDL 5.0	150.0	No	No
Glyphosate (ug/L) - TW	2022/09/15	<MDL 25.0	280.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Malathion (ug/L) - TW	2022/09/15	<MDL 5.0	190.0	No	No
Metolachlor (ug/L) - TW	2022/09/15	<MDL 3.0	50.0	No	No
Metribuzin (ug/L) - TW	2022/09/15	<MDL 3.0	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/09/15	<MDL 0.5	80.0	No	No
Paraquat (ug/L) - TW	2022/09/15	<MDL 1.0	10.0	No	No
PCB (ug/L) - TW	2022/09/15	<MDL 0.05	3.0	No	No
Pentachlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	60.0	No	No
Phorate (ug/L) - TW	2022/09/15	<MDL 0.3	2.0	No	No
Picloram (ug/L) - TW	2022/09/15	<MDL 5.0	190.0	No	No
Prometryne (ug/L) - TW	2022/09/15	<MDL 0.1	1.0	No	No
Simazine (ug/L) - TW	2022/09/15	<MDL 0.5	10.0	No	No
Terbufos (ug/L) - TW	2022/09/15	<MDL 0.5	1.0	No	No
Tetrachloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/09/15	<MDL 0.2	100.0	No	No
Triallate (ug/L) - TW	2022/09/15	<MDL 10.0	230.0	No	No
Trichloroethylene (ug/L) - TW	2022/09/15	<MDL 0.5	5.0	No	No
2,4,6-Trichlorophenol (ug/L) – TW	2022/09/15	<MDL 0.2	5.0	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) (ug/L) - TW	2022/09/15	<MDL 10.0	100.0	No	No
Trifluralin (ug/L) – TW	2022/09/15	<MDL 0.5	45.0	No	No
Vinyl Chloride (ug/L) – TW	2022/09/15	<MDL 0.2	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2022/01/01	71.25	100	No	Yes
HAA Total (ug/L) Annual Average – DW	2022/01/01	70.025	80	No	Yes

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

MDL = Minimum detection limit

Additional Samples

Parameter	Date	Result (ug/L)	Limit (ug/L)	Exceedance
Microcystin DM (ug/L) – RW & TW	June 7, 2022	<0.15	0.15	No
Microcystin DM (ug/L) – RW & TW	June 13, 2022	<0.15	0.15	No
Microcystin DM (ug/L) – RW & TW	June 20, 2022	<0.15	0.15	No

Major Maintenance Summary

Water Treatment Plant Maintenance

Date	Description
February 27	Waste water line from WTP to sewage plant clogged and cleaned out
March 18	Annual inspection of lifting devices
March 24	Annual inspection of treatment clarifier
April 22	Power failure
April 25	Lowered storm manhole and asphalted in ramp to garage door to prevent flooding in WTP
April/May	Found crack in filter #1 during inspection (leaking), repaired in May
June 16	Repaired temporarily leaking bottom floors on filters due to corrosion, will investigate permanent solution for 2023 budget
July	SCADA repairs on several occasions
July 7	Replaced one motor for flocculator
October	Backwash Pumps Repairs
October 20	Polymer pump replaced
October 18 / 21	Backwash pump #1 to get impeller fixed
November 9	Change flocculation motor, train one
November 16	Backwash pumped installed
December 7	Install / wire raw flow meter
December 20	Shaft on Train 1 motor broken, rebuilt and reinstalled
December 21	Remove Low lift pump #1 to be rebuilt

Distribution Maintenance

Date	Location Reference	Description
Nov 28	WTP	Replace defective hydrant valve beside garage of water plant
October/November	Distribution	Flushed distribution systems and winterized all hydrants

Appendix A - WTRS Data and Submission Confirmation



Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 96-P-4096
Permit Holder: NORTH PLANTAGENET, CORP. OF THE TOWNSHIP.
Received on: Feb 8, 2023 8:19 AM

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.

[Return to Main Page](#)

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