Davy Drive Subdivision Drinking Water System

Waterworks # 220007141
System Category – Small Municipal Residential

Annual Water Report

Prepared For: The Township of Ramara

Reporting Period of January 1st – December 31st, 2024

Issued: February 26, 2025

Revision: 0

Operating Authority:

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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 does not serve more than 10,000 residence and the annual reports will be available to residents at the Township Of Ramara Administration Office and on the Township's website at www.ramara.ca. Notification that reports are available free of charge will be made on the Township of Ramara website. The Township of Ramara Administration Office is located at 2297 Highway 12, Brechin, ON L0K 1B0.

Compliance Report Card

Drinking Water System Number: 220007141
Drinking Water System Name: Davy Drive Subdivision DWS
Drinking Water System Owner: Township of Ramara
Drinking Water System Category: Small Municipal Residential
Period Being Reported: January 1, 2024 - December 31, 2024

Health & Safety	# of Events	Date	Details
Number of Incidents	0	N/A	N/A

Drinking Water	# of Events	Date	Details
MECP Inspections	0	August 22, 2024	Inspection for 2023/2024 inspection cycle completed in January 2024. Inspection rating 100% Unannounced drinking water inspection. Final inspection rating of 100%
AWQI's	1	March 14, 2024	Plant shut down due to break in distribution system, causing low pressure.
Number of Non-Compliances	0	N/A	N/A
Number of Boil Water Advisories	0	N/A	N/A

System Process Description

Raw Source

The water supply for the DWS comes from four (4) groundwater wells that are considered to be GUDI (Groundwater Under the Direct Influence of Surface Water).

Treatment

The treatment system consists of the following:

- Pre-chlorination system and potassium permanganate system for iron and manganese oxidation
- Two (2) greensand filters with backwash equipment and backwash waste storage/decant tank system
- Cartridge filtration systems
- Ultraviolet Light Disinfection for primary disinfection
- Sodium hypochlorite secondary disinfection system
- One (1) standpipe reservoir for potable water storage
- A high lift pumping system
- Stand-by propane generator on-site

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
Potassium Permanganate	Iron and Manganese Oxidation	Carus Chemical Company

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legis-lation	Corrective Action Taken
March 14, 2024	164622	Distribution	Low distribution pressure	Service line damaged in distribution system. Plant shut down during repairs.		Flushed distribution system. One sample collected from each sampling station.

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-compliances identified in a Ministry Inspection during this period.				

Flows

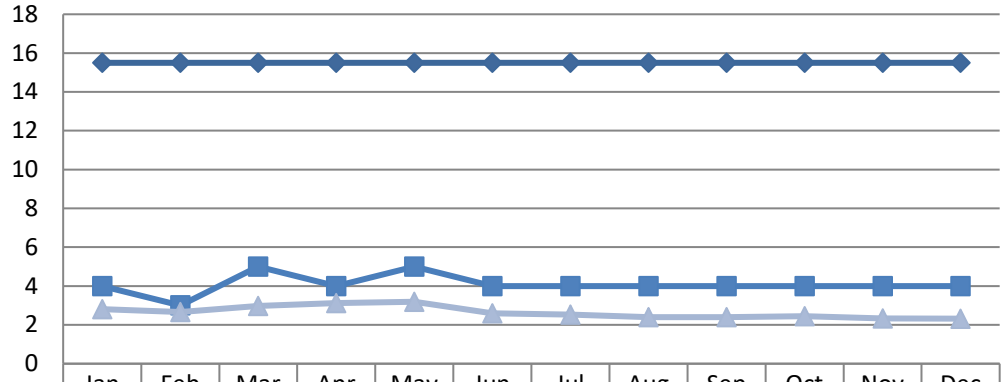
The Davy Drive Drinking Water System is operating on average under half the rated capacity.

Raw Water Flows

The Permit to Take Water compliance criteria is in litres per minute (L/min) but for the purposes of this report the flow rate is reported in litres per second (L/sec) based on industry standard for flow monitoring recording. The Raw Water flows are regulated under the Permit to Take Water. 2024 Raw Flow Data was submitted to the Ministry electronically under permit #7187-AQPS6B. The confirmation and a copy of the data that was submitted are attached in Appendix A.

Total Monthly Flows (m³/d)

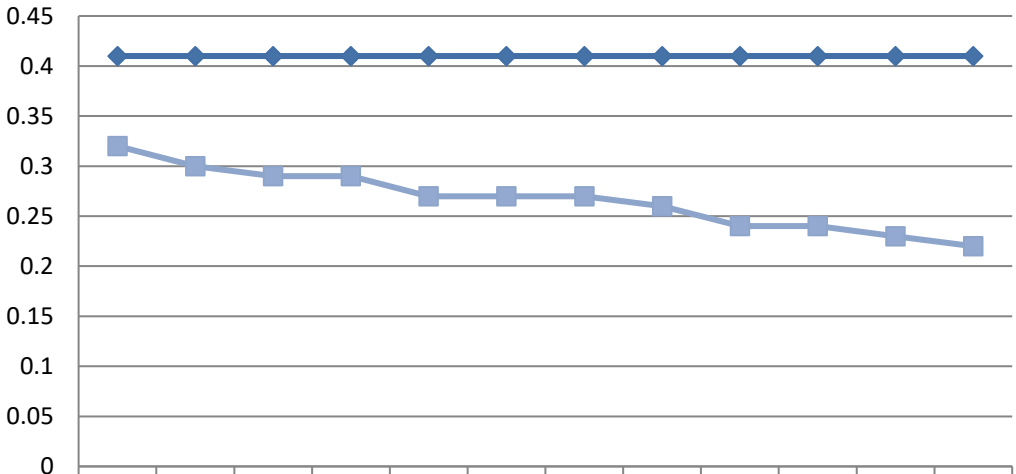
Max Allowable PTTW − Well # 1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
Max Flow (m³/d)	4	3	5	4	5	4	4	4	4	4	4	4
Avg (m³/d)	2.81	2.66	2.97	3.13	3.19	2.60	2.53	2.39	2.40	2.45	2.33	2.32

Monthly Rated Flows (L/s)

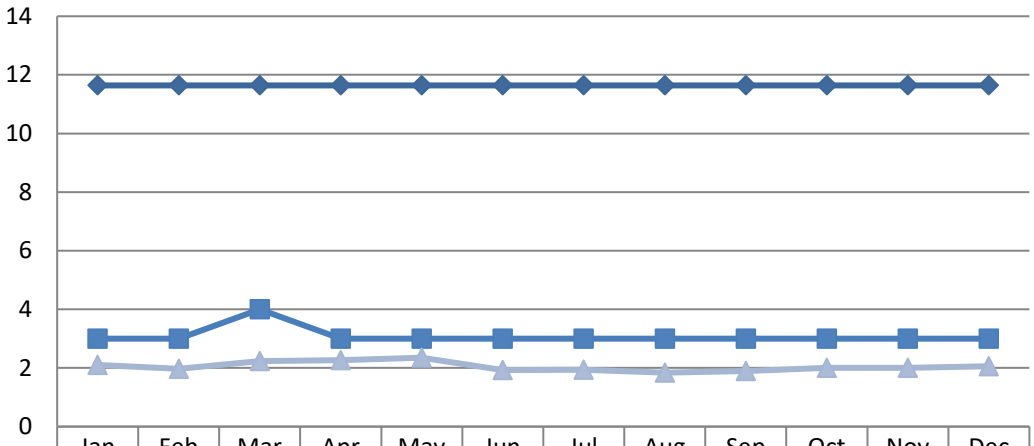
Max allowable rate – PTTW − Well # 1



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Max Rate (L/s)	0.32	0.30	0.29	0.29	0.27	0.27	0.27	0.26	0.24	0.24	0.23	0.22

Total Monthly Flows (m³/d)

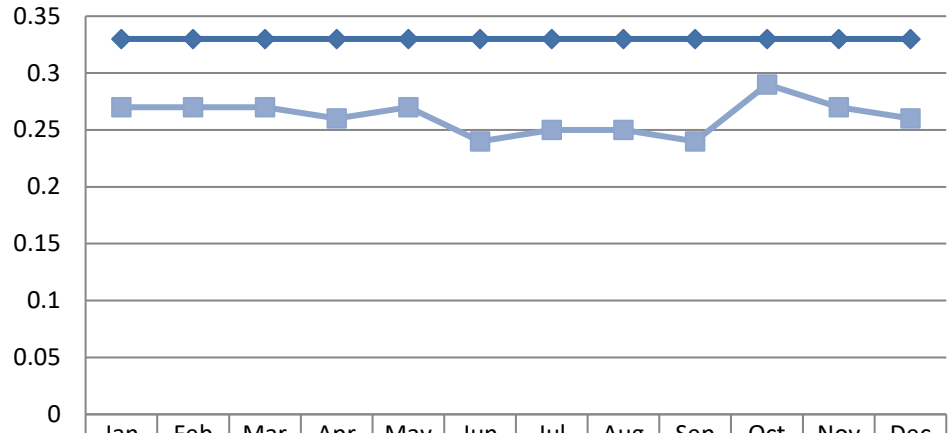
Max Allowable PTTW − Well # 2



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	11.64	11.64	11.64	11.64	11.64	11.64	11.64	11.64	11.64	11.64	11.64	11.64
Max Flow (m³/d)	3	3	4	3	3	3	3	3	3	3	3	3
Avg (m³/d)	2.10	1.97	2.23	2.27	2.35	1.93	1.94	1.84	1.90	2.00	2.00	2.06

Monthly Rated Flows (L/s)

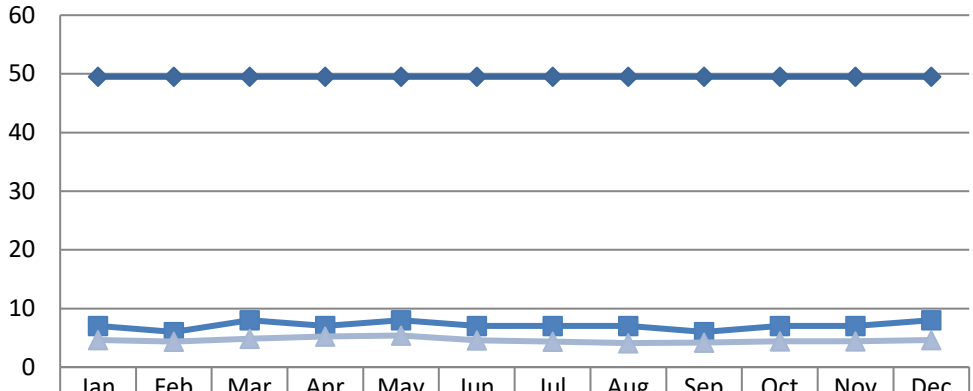
Max allowable rate – PTTW − Well #2



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Max Rate (L/s)	0.27	0.27	0.27	0.26	0.27	0.24	0.25	0.25	0.24	0.29	0.27	0.26

Total Monthly Flows (m³/d)

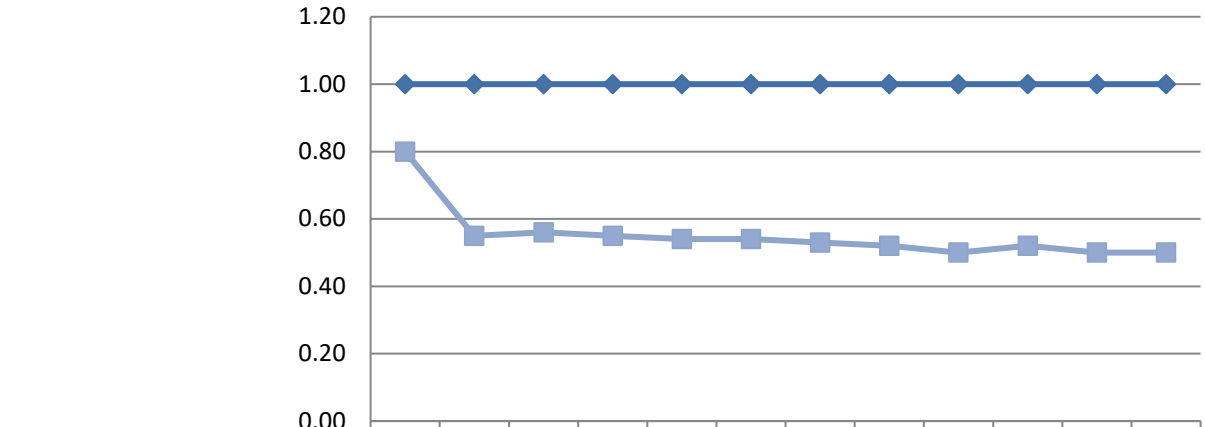
Max Allowable PTTW − Well #3



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
Max Flow (m³/d)	7	6	8	7	8	7	7	7	6	7	7	8
Avg (m³/d)	4.61	4.38	4.87	5.20	5.39	4.57	4.35	4.10	4.20	4.39	4.40	4.65

Monthly Rated Flows (L/s)

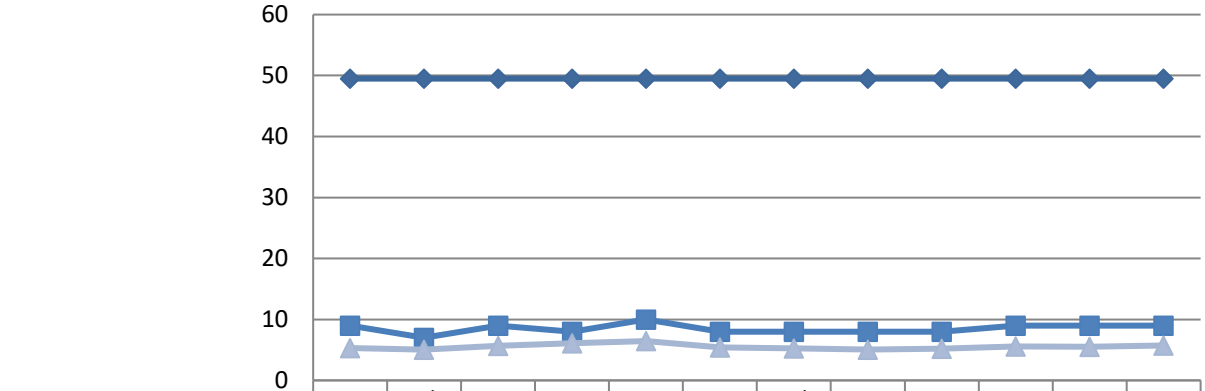
Max allowable rate – PTTW − Well #3



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Rate (L/s)	0.80	0.55	0.56	0.55	0.54	0.54	0.53	0.52	0.50	0.52	0.50	0.50

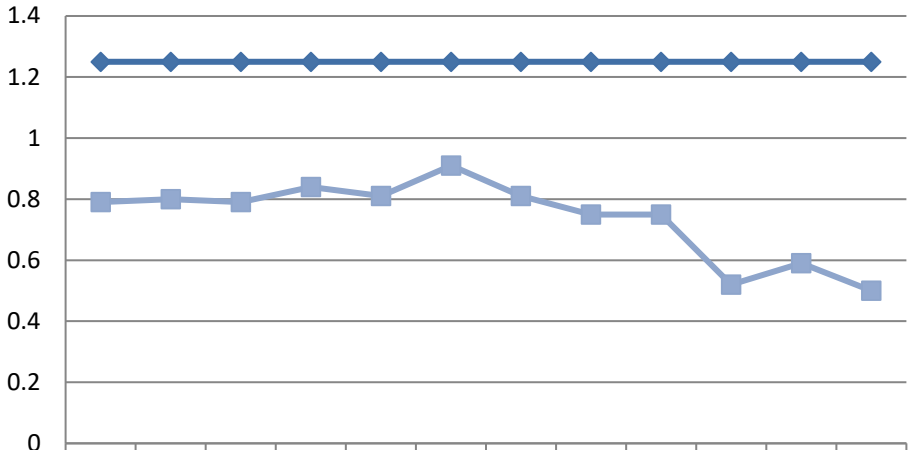
Total Monthly Flows (m³/d)

Max Allowable PTTW − Well #4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
Max Flow (m³/d)	9.0	7.0	9.0	8.0	10.0	8.0	8.0	8.0	8.0	9.0	9.0	9.0
Avg (m³/d)	5.29	5.07	5.65	6.10	6.45	5.43	5.23	5.06	5.20	5.55	5.53	5.74

Monthly Rated Flows (L/s)
Max allowable rate – PTTW − Well #4



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Max Rate (L/s)	0.79	0.80	0.79	0.84	0.81	0.91	0.81	0.75	0.75	0.52	0.59	0.50

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence. The average consumption for the Davy Drive Drinking Water System during 2024 was: 10.3 m^3/day.

Davy Drive Drinking Water System Historical Demands

Year	Number of Connections	Average Daily Demand (m^3)	Maximum Daily Demand (m^3/day)	Rated Capacity	Per Capita Consumption*(L/p/day)	
					Average	Maximum
2013	34	16	31	76	180	352
2014	34	17	44	76	192	498
2015	34	13	26	76	149	294
2016	34	13	35	76	152	396
2017	34	12.3	21	76	140	239
2018	34	14.3	23	76	163	261
2019	34	14.5	32	76	165	363
2020	34	16.7	35	76	189	396
2021	34	15.8	25	76	179	283
2022	34	15.9	37	76	179	419
2023	34	13	41	76	147	463
2024	35	10.3	17	76	113	186
3 Year Average/Max		13.1	41	76	146.3	463

*Based on 2.6 people per dwelling
Note: Excluding pipe leaks/breaks & system flushing

Note: This calculation was completed based on current connections in the system, growth within the drinking water system has not been considered.

System Reserve Capacity

In accordance with the MECP Procedure D-5-1, the reserve capacity is calculated by the following formula:

Reserve Capacity = Design Flow – Committed Flow

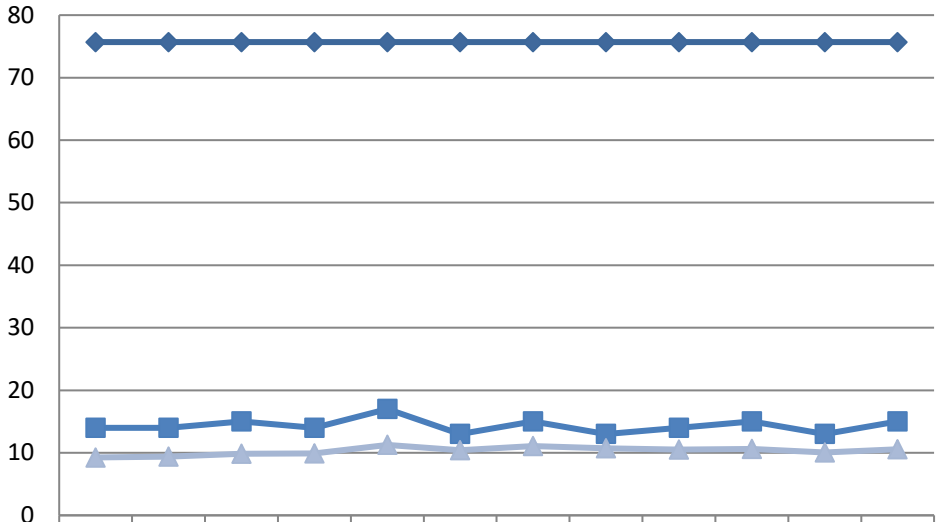
Design flow is the maximum permissible flow approved by the MDWL and/or PTTW. Davy Drive Water Works maximum daily rated capacity is 76 m³/day.

The committed flow is the total expected water demand from the existing and proposed connections based on the previous three years of data. The committed number of service connections is: 42. The three-year (2022-2024) maximum per capita water consumption is: 463 L/p/day. At this water consumption rate, the committed flow is: 51 m³/day.

As a result, the calculated reserve capacity is: 25 m³/day.

Monthly Rated Flows

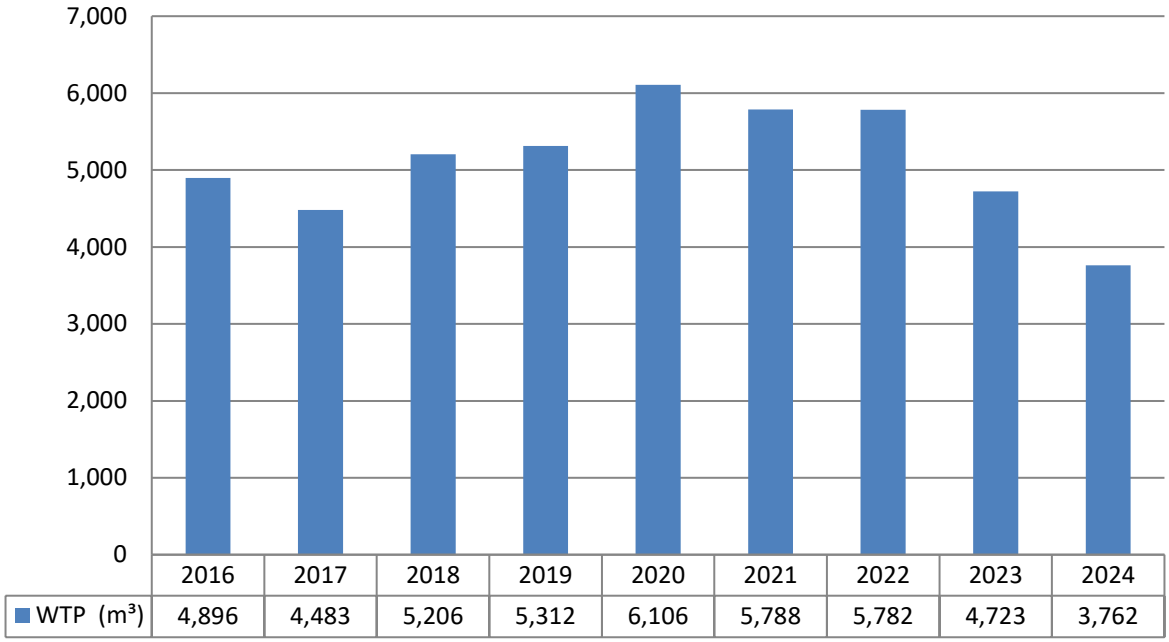
Rated Capacity – MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m³/d)	75.69	75.69	75.69	75.69	75.69	75.69	75.69	75.69	75.69	75.69	75.69	75.69
Max Daily Flow (m³/d)	14	14	15	14	17	13	15	13	14	15	13	15
Avg (m³/d)	9.26	9.38	9.87	9.90	11.26	10.40	11.10	10.71	10.50	10.61	10.07	10.58

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 Well 1	12	0	1	0	2		
Raw Well 2	12	0	0	0	2		
Raw Well 3	12	0	1	0	6		
Raw Well 4	12	0	1*	0	23*		
Distribution	29	0	0	0	0	0	1

***Note:** One result for raw water from Well # 4 resulted in Total Coliform and E. Coli as NDOGT (No Data: Overgrown with Target Bacteria).

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
Turbidity Well 1 (NTU)	17	2.58	9.6
Turbidity Well 2 (NTU)	17	0.46	5.77
Turbidity Well 3 (NTU)	17	0.26	3.79
Turbidity Well 4 (NTU)	17	0.19	3.08
Turbidity – Filter Line 1 (NTU)	8760	0.02	0.51
Turbidity – Filter Line 2 (NTU)	8760	0.02	0.62
Turbidity – Treated Water (NTU)	8760	0.50	2.04
Treated Water Chlorine	8760	1.25	5.00
Distribution Water Chlorine	109	0.38	1.72
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Record the unit of measure if it is **not** milligrams per litre.
Note: For continuous monitors 8760 is used as the number of samples**.** 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 O. Reg. 170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested every 5 years as required 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.

- MAC = Maximum Allowable Concentration as per O. Reg. 169/03
- MDL = Method Detection Limit

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Treated Water					
Antimony: Sb (ug/L) - TW	2024/08/07	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2024/08/07	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2024/08/07	89.4	1000.0	No	No
Boron: B (ug/L) - TW	2024/08/07	43	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2024/08/07	0.004	5.0	No	No
Chromium: Cr (ug/L) - TW	2024/08/07	0.16	50.0	No	No
Mercury: Hg (ug/L) - TW	2024/08/07	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2024/08/07	<MDL 0.04	50.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Exceedances	
				MAC	1/2 MAC
Uranium: U (ug/L) - TW	2024/08/07	0.447	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW	2022/08/03	0.21	1.5	No	No
Nitrite (mg/L) - TW	2024/02/05	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2024/05/06	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2024/08/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2024/11/04	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2024/02/05	0.028	10.0	No	No
Nitrate (mg/L) - TW	2024/05/06	0.025	10.0	No	No
Nitrate (mg/L) - TW	2024/08/07	0.571	10.0	No	No
Nitrate (mg/L) - TW	2024/11/04	0.011	10.0	No	No
Sodium: Na (mg/L) - TW	2020/08/12	25.2	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2020/08/24	23.4	20*	Yes	Yes

*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 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. Lead is sampled every 3 years and was last sampled in 2022.

Distribution System	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	2	133	162	N/A	N/A
pH	2	6.8	7.6	N/A	N/A
Lead (ug/l)	0	-	-	10	0

Note: Samples shown above are reflective of the 2022 lead sampling period.

Organic Parameters

These parameters are tested every 5 years 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	2024/08/07	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2024/08/07	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2024/08/07	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2024/08/07	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2024/08/07	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2024/08/07	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2024/08/07	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2024/08/07	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2024/08/07	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2024/08/07	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2024/08/07	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2024/08/07	<MDL 0.20	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2024/08/07	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2024/08/07	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2024/08/07	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2024/08/07	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2024/08/07	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2024/08/07	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2024/08/07	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2024/08/07	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2024/08/07	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2024/08/07	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2024/08/07	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2024/08/07	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2024/08/07	<MDL 0.02	190.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) (ug/L)	2024/08/07	<MDL 0.12	100	No	No
Metolachlor (ug/L) - TW	2024/08/07	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2024/08/07	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2024/08/07	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2024/08/07	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2024/08/07	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2024/08/07	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2024/08/07	<MDL 0.01	2.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Picloram (ug/L) - TW	2024/08/07	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2024/08/07	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2024/08/07	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2024/08/07	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2024/08/07	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2024/08/07	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2024/08/07	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2024/08/07	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2024/08/07	<MDL 0.25	5.00	No	No
Trifluralin (ug/L) - TW	2024/08/07	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2024/08/07	<MDL 0.17	1.00	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average - DW	2024	49.25	100	No	Yes
HAA Total (ug/L) Annual Average - DW	2024	47.59	80	No	Yes

MAC = Maximum Allowable Concentration as per O. Reg. 169/03
MDL = Method Detection Limit

Additional Legislated Samples

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
No additional legislated samples required.				

Inorganic or Organic Parameter Exceedances

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
HAA Total (ug/L) Annual Average - DW	47.59	ug/L	2024 Annual Average

Major Maintenance Summary incurred to install, repair or replace required equipment

Item #	Description
1	High lift #1 replaced
2	Backwash tank level sensor installed
3	Replace backwash pump starter

Appendix A

WTRS Data Submission Confirmation

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 7187-AQPS6B
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF RAMARA.
Received on:Jan 15, 2025 11:01 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.

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