

# South Ramara Drinking Water System

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Waterworks # 220010681  
System Category – Large Municipal Residential

## Annual Water Report

Prepared For: The Township of Ramara

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup>, 2022

Issued: February 24, 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

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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](http://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:** 220010681

**Drinking Water System Name:** South Ramara DWS

**Drinking Water System Owner:** Township of Ramara

**Drinking Water System Category:** Large Municipal Residential

**Period Being Reported:** January 1, 2022 - December 31, 2022

	# of Events	Date	Details
<b>Health &amp; Safety</b>			
Number of Incidents	0		
<b>Drinking Water</b>			
MECP Inspections	2	February 09, 2022	Unannounced - Focused Drinking Water Inspection – No rating at time of issuance in 2021 annual report- Final Inspection Rating of 100%
		September 09, 2022	Unannounced - Focused Drinking Water Inspection Rating– 100%
AWQI's	0		
Number of Boil Water Advisories	0		

## System Process Description

### Raw Source

The South Ramara DWS is supplied with surface water from Lake Simcoe.

### Treatment

The treatment system consists of the following:

- Raw water is sourced from Lake Simcoe through an intake crib with an inlet screen further the low lift pumping station consisting of two (2) low lift pumps

- Inlet line connected to sodium hypochlorite feed line diffuser
- Raw water flow meter
- Carbon Dioxide injection system for adjusting pH to optimize coagulation process with a metering panel equipped with actuated control valve and bypass piping, gas feed flowmeter, filter, carbon dioxide gas pressure regulator and isolating manual ball valves
- Sodium hypochlorite is added for pre-chlorination
- Coagulant is added to the raw water header before a static mixer
- Two (2) package treatment units each consisting of a flocculation tanks with variable speed flocculators, settling tanks and dual media filter with rotary surface wash and backwash pumps
- Backwash waste storage/decant tank system. Supernatant to be pumped to Lake Simcoe
- Continuously monitoring turbidity analyzers on each filter line
- Chlorine injection system
- Two (2) above ground clearwells with two highlift pumps
- Chlorine residual and pH analyzers prior to distribution connection
- SCADA computer control system
- Standby power generator

**Treatment Chemicals used during the reporting year:**

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
Poly-Aluminum Chloride	Flocculation	Brenntag
Carbon Dioxide	pH Optimization	Praxair

**Summary of Non-Compliance**

**Adverse Water Quality Incidents**

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
There were no adverse water quality incidents during the reporting period.						

**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 reported during the reporting period.				

**Flows**

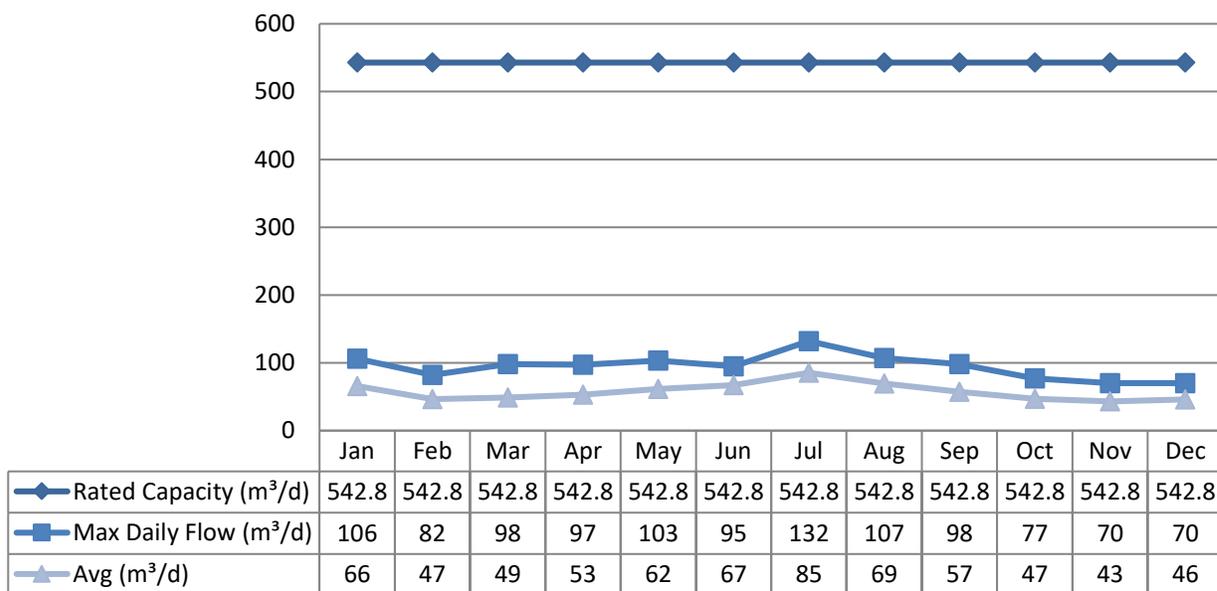
The South Ramara Drinking Water System is operating on average under half the rated capacity.

**Raw Water Flows**

The Raw Water flows are regulated under the Permit to Take Water. 2022 Raw Flow Data was submitted to the Ministry electronically under permit #4371-9UYKYB. The confirmation and a copy of the data that was submitted are attached in Appendix A.

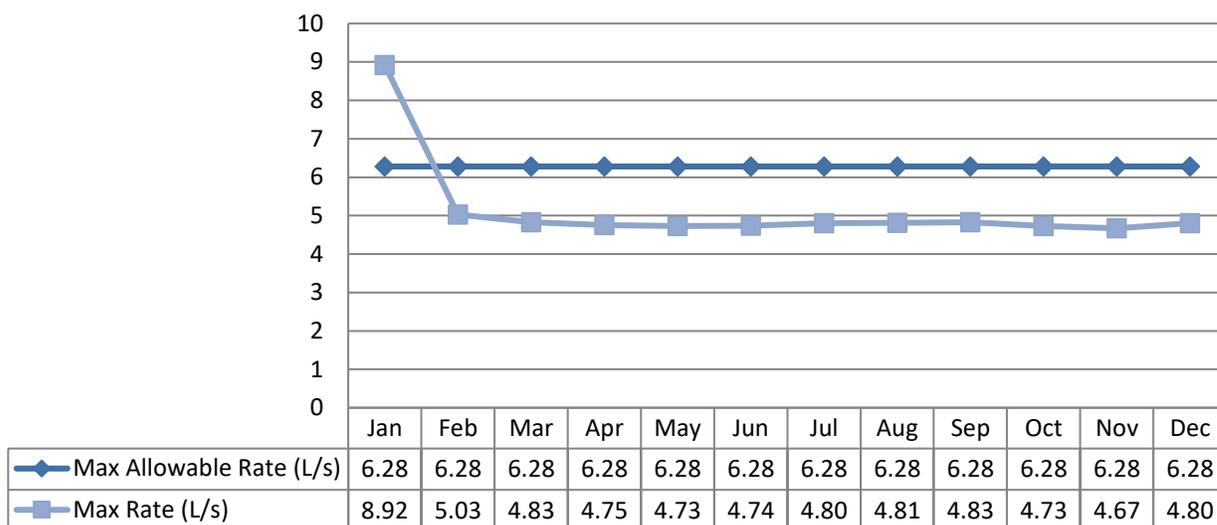
**Total Monthly Flows (m<sup>3</sup>/d)**

Max Allowable PTTW –Raw



Monthly Rated Flows (L/s)

Max allowable rate – PTTW –Raw



Note: The above table shows there was an exceedance in instantaneous peak flow rate (L/s). The spike in January was due to scheduled Flow Meter calibration. All spikes are reviewed for compliance.

**Treated Water Flows**

The Treated Water flows are regulated under the Municipal Licence. The average water consumption for the South Ramara Drinking Water System during 2022 was: 52 m<sup>3</sup>/day.

South Ramara Drinking Water System Historical Demands

Year	Number of Connections	Average Daily Demand (m <sup>3</sup> )	Maximum Daily Demand (m <sup>3</sup> /day)	Rated Capacity	Per Capita Consumption* (L/p/day)	
					Average	Maximum
2012	99	50	136	387	193	528
2013	100	52	98	387	199	377
2014	100	59	181	387	227	696
2015	102	51	124	387	193	468
2016	104	54	148	387	200	547
2017	104	40.5	104	387	150	385
2018	106	41.7	111	387	151	402
2019	114	46.9	135	387	158	689
2020	115	58.2	175	387	195	585
2021	115	53	128	387	177	428
2022	132	52	124	387	153	361
3 Year Average/Max		54.4	175	387	175	585

\*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:

$$\text{Reserve Capacity} = \text{Design Flow} - \text{Committed Flow}$$

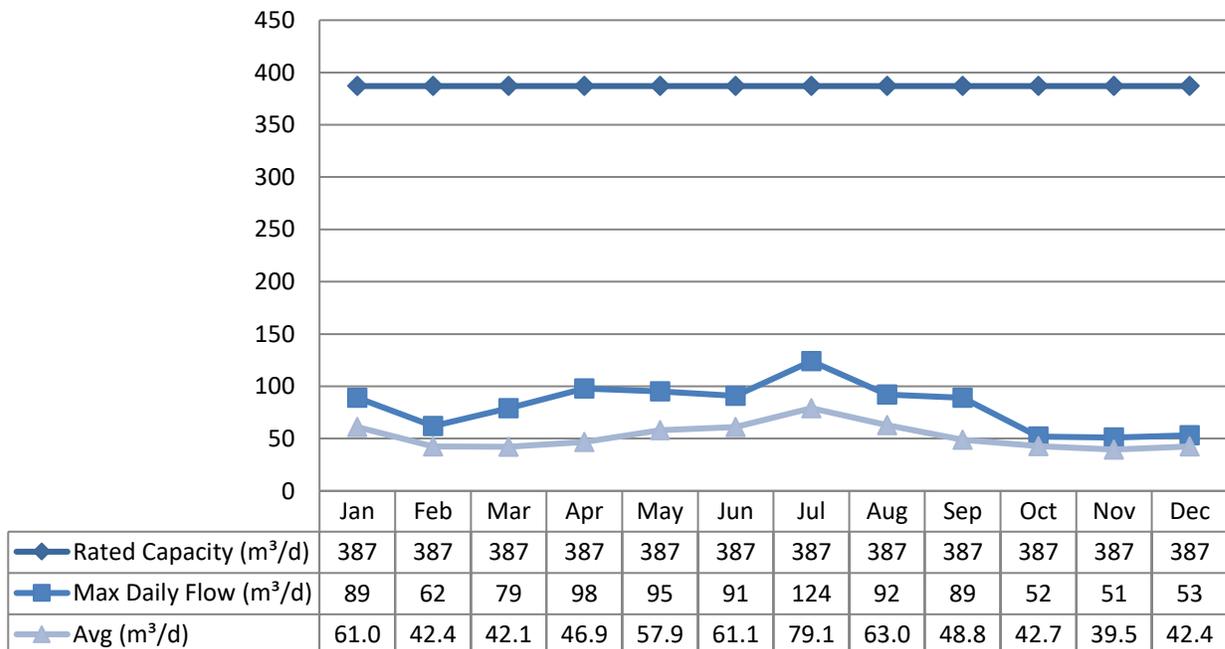
Design flow is the maximum permissible flow approved by the MDWL and/or PTTW. South Ramara Water Works maximum daily rated capacity is 387 m<sup>3</sup>/day.

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: 155. The three-year (2020-2022) maximum per capita water consumption is: 585 L/p/day. At this water consumption rate, the committed flow is: 236 m<sup>3</sup>/day.

As a result, the calculated reserve capacity is: 151 m<sup>3</sup>/day.

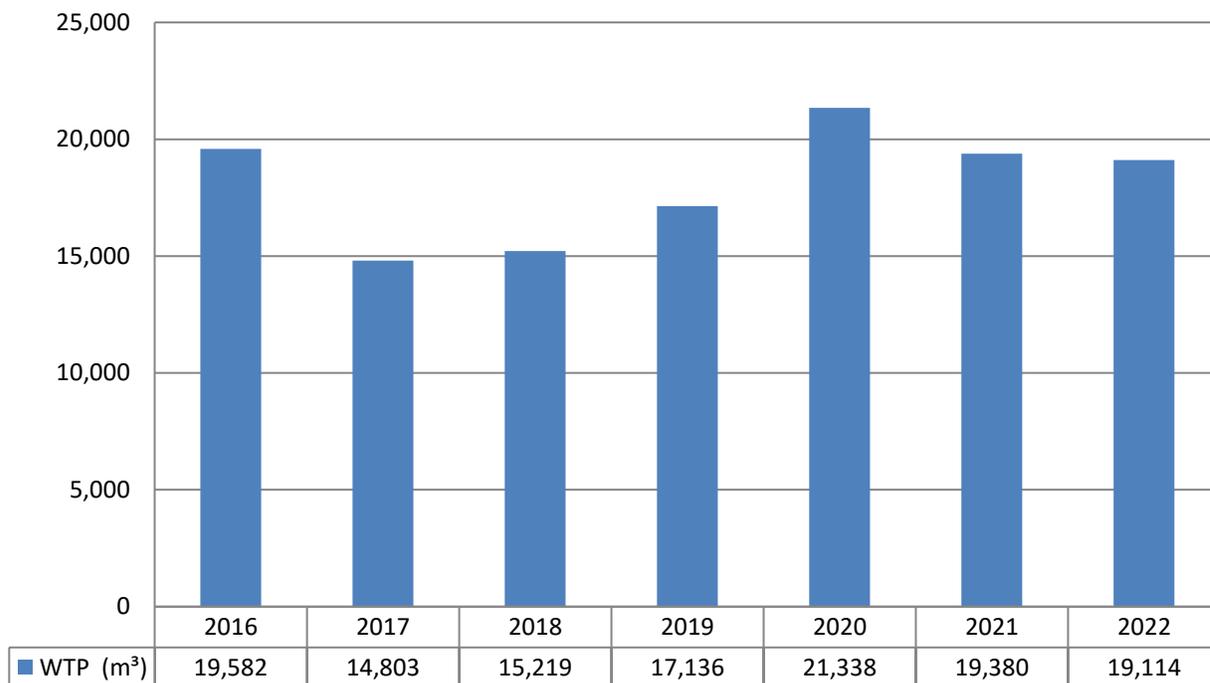
**Monthly Rated Flows**

Rated Capacity – MDWL



Annual Total Flow Comparison

Total Annual m<sup>3</sup>



**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
<b>Raw</b>	52	0	80	0	3540		
<b>Treated</b>	52	0	0	0	0	0	20
<b>Distribution</b>	104	0	0	0	0	0	10

Operational Testing

	No. of Samples Collected	Range of Results	
		Minimum	Maximum
<b>Turbidity – Filter Line 1 (NTU)</b>	8760	0.00	10.00
<b>Turbidity – Filter Line 2 (NTU)</b>	8760	0.00	10.30
<b>Turbidity-Treated (NTU)</b>	8760	0.00	9.99
<b>Treated Water Chlorine</b>	8760	0.00	1.99
<b>Distribution Water Chlorine</b>	365	0.73	1.94
<b>Fluoride (If the DWS provides fluoridation)</b>	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 annually 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
<b>Treated Water</b>					
Antimony: Sb (ug/L) - TW	2022/08/03	<MDL 0.6	6.0	No	No
Arsenic: As (ug/L) - TW	2022/08/03	0.4	10.0	No	No
Barium: Ba (ug/L) - TW	2022/08/03	31.4	1000.0	No	No
Boron: B (ug/L) - TW	2022/08/03	15.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2022/08/03	0.021	5.0	No	No
Chromium: Cr (ug/L) - TW	2022/08/03	0.16	50.0	No	No
Mercury: Hg (ug/L) - TW	2022/08/03	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2022/08/03	0.44	50.0	No	No
Uranium: U (ug/L) - TW	2022/08/03	0.084	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	2022/08/03	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW	2022/02/07	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/05/02	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/08/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2022/11/07	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2022/02/07	0.155	10.0	No	No
Nitrate (mg/L) - TW	2022/05/02	0.162	10.0	No	No
Nitrate (mg/L) - TW	2022/08/03	0.02	10.0	No	No
Nitrate (mg/L) - TW	2022/11/07	0.032	10.0	No	No
Sodium: Na (mg/L) - TW	2020/08/12	32.0	20*	Yes	Yes
Sodium: Na (mg/L) - TW	2020/08/24	33.1	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.

Distribution System	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (ug/L)	Number of Exceedances
Alkalinity (mg/L)	2	108	129	N/A	N/A
pH	2	7.60	7.70	N/A	N/A
Lead (ug/l)	2	0.05	0.07	10	0

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

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
<b>Treated Water</b>					
Alachlor (ug/L) - TW	2022/08/03	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2022/08/03	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2022/08/03	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2022/08/03	<MDL 0.32	1.00	No	No
Benzo(a)pyrene (ug/L) - TW	2022/08/03	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2022/08/03	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2022/08/03	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2022/08/03	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2022/08/03	<MDL 0.17	2.00	No	No
Chlorpyrifos (ug/L) - TW	2022/08/03	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2022/08/03	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2022/08/03	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2022/08/03	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2022/08/03	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2022/08/03	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2022/08/03	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2022/08/03	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2022/08/03	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2022/08/03	<MDL 0.19	100.00	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
(ug/L) - TW					
Diclofop-methyl (ug/L) - TW	2022/08/03	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2022/08/03	<MDL 0.06	20.00	No	No
Diquat (ug/L) - TW	2022/08/03	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2022/08/03	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2022/08/03	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2022/08/03	<MDL 0.02	190.00	No	No
Metolachlor (ug/L) - TW	2022/08/03	<MDL 0.01	50.00	No	No
Metribuzin (ug/L) - TW	2022/08/03	<MDL 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2022/08/03	<MDL 0.3	80.00	No	No
Paraquat (ug/L) - TW	2022/08/03	<MDL 1.0	10.00	No	No
PCB (ug/L) - TW	2022/08/03	<MDL 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	2022/08/03	<MDL 0.15	60.00	No	No
Phorate (ug/L) - TW	2022/08/03	<MDL 0.01	2.00	No	No
Picloram (ug/L) - TW	2022/08/03	<MDL 1.0	190.00	No	No
Prometryne (ug/L) - TW	2022/08/03	<MDL 0.03	1.00	No	No
Simazine (ug/L) - TW	2022/08/03	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2022/08/03	<MDL 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2022/08/03	<MDL 0.35	10.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2022/08/03	<MDL 0.2	100.00	No	No
Triallate (ug/L) - TW	2022/08/03	<MDL 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	2022/08/03	<MDL 0.44	5.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2022/08/03	<MDL 0.25	5.00	No	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA) (ug/L)	2022/08/03	<MDL 0.12	100	No	No
Trifluralin (ug/L) - TW	2022/08/03	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2022/08/03	<MDL 0.17	1.00	No	No
<b>Distribution Water</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2022	82.8	100	No	Yes
HAA Total (ug/L) Annual Average - DW	2022	67.3	80	No	Yes

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

MDL = Method Detection Limit

**Additional Legislated Samples**

Municipal Drinking Water Licence (MDWL)	Parameter	Date Sampled	Result	Unit of Measure
Settling Tank Discharge Point	Filter Backwash (FBW): Suspended Solids (Composite)	January 2022	2	mg/L
		February 2022	9	mg/L
		March 2022	5	mg/L
		April 2022	5	mg/L
		May 2022	3	mg/L
		June 2022	9	mg/L
		July 2022	10	mg/L
		August 2022	21	mg/L
		September 2022	11	mg/L
		October 2022	2	mg/L
		November 2022	4	mg/L
		December 2022	3	mg/L
Annual Average	Filter Backwash (FBW): Suspended Solids	2022 Annual Average	7.0	mg/L

Note: The Suspended Solids annual average limit is 25 mg/L.

Municipal Drinking Water Licence (MDWL)	Parameter	Date Sampled	Result	Unit of Measure
Settling Tank Discharge Pont	Filter Backwash (FBW): pH	February 2022	8.14	No unit
	Filter Backwash (FBW): Aluminum	February 2022	0.172	mg/L

Municipal Drinking Water Licence (MDWL)	Collected Weekly June – Oct 2022	Total Microcystin Raw Results Range (ug/L)	Total Microcystin Treated Water Results Range (ug/L)	Treated Water Total Microcystin Limit 1.5 ug/L Exceeded Y/N
Harmful Algal Blooms Monitoring required June to October at a minimum. Samples collected weekly. Raw and Treated water tested for Total Microcystins.	June	<0.1 – <0.1	<0.1 - <0.1	N
	July	<0.1 - <0.1	<0.1 - <0.1	N
	August	<0.1 - <0.1	<0.1 - <0.1	N
	September	<0.1 - <0.1	<0.1 - <0.1	N
	October	<0.1 – <0.1	<0.1 - <0.1	N

**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
Trihalomethane: Total (ug/L) Annual Average - DW	82.8	(ug/L)	2022 Annual Average
HAA Total (ug/L) Annual Average - DW	67.3	(ug/L)	2022 Annual Average

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

Item #	Description
1	New filter headloss gauges
2	Filter 1 leak repair
3	Repair faulty control valves on filter 2
4	Replace gear box and flocculator on filter 1 and 2
5	Mould remediation on office/ clearwell wall
6	Replace sample station
7	Reservoir level sensor failure

# Appendix A

## WTRS Data Submission Confirmation



Ministry of the Environment,  
Conservation and Parks

| [WT DATA](#) | [USER PROFILE](#) | [CONTACT US](#) | [HELP](#) | [HOME](#) | [LOGOUT](#) |

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: 4371-9UYKYB  
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF RAMARA.  
Received on: Feb 17, 2023 3:05 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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TOWNSHIP OF RAMARA | 2023/02/17  
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Last modified: 2018/09/18

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