



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Tri County Drinking Water System
Operations Report
First Quarter 2024

Ontario Clean Water Agency, Southwest Region
Sam Smith, Sr. Operations Manager
Date: May 17, 2024

Facility Description

Facility Name: Tri-County Drinking Water System
Regional Manager: Dale LeBritton (519) 476-5898
Sr. Operations Manager: Sam Smith (226) 377-1540
Business Development Manager: Robin Trepanier (519) 791-2922
Facility Type: Municipal
Classification: Class 2 Water Distribution, Class 2 Water Treatment
Title Holder: Municipality

Service Information

Area(s) Serviced: West Elgin, Dutton/Dunwich, Southwest Middlesex, Newbury and Bothwell
Population Serviced: 9,985
No. of Connections:
Water Meters: Commercial / Residential
In Service Date: 2009

Capacity Information

Total Design Capacity: 12.160 (1000 m³/day)
Total Annual Flow: 1,381 (1000 m³/year)
Average Day Flow: 3.770 (1000 m³/day)
Maximum Day Flow: 5.380 (1000 m³/day)

Operational Description

Water treatment with intake in Lake Erie, 4 low lift pumps, lifting up to the treatment plant. Membrane filtration followed by injection with Sodium Hypochlorite for primary disinfection and into the 2 Storage Tanks. Pumping to tower & distribution system with 4 high lift pumps.

SECTION 1: COMPLIANCE SUMMARY

FIRST QUARTER:

There were no compliance issues to report during the first quarter.

SECTION 2: INSPECTIONS

FIRST QUARTER:

On January 24th, a routine inspection was conducted at the Tri-County Drinking Water System by the MECF. All follow-up questions have been answered. We have not yet received an inspection report or rating.

SECTION 3: QEMS UPDATE

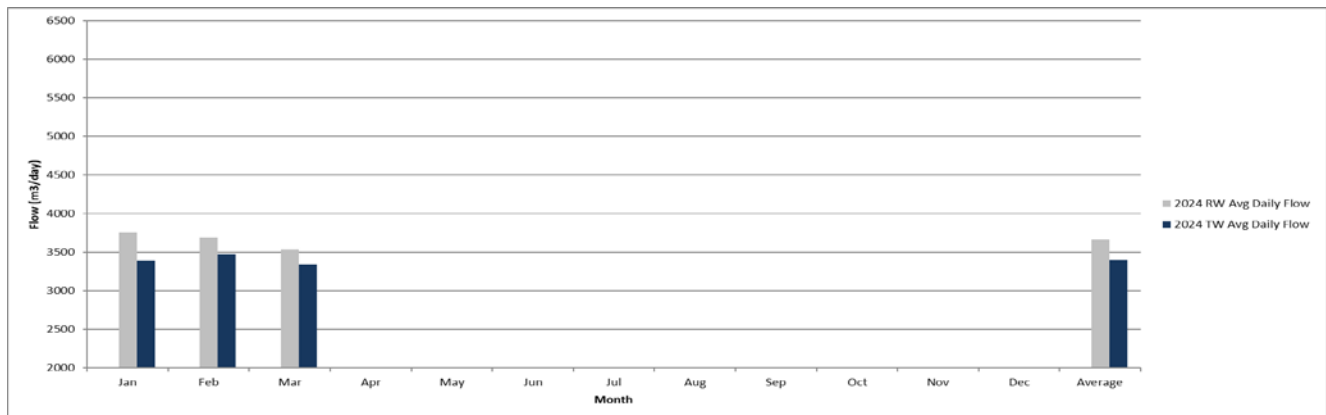
FIRST QUARTER:

There were no QEMS updates to report during the first quarter.

SECTION 4: PERFORMANCE ASSESSMENT REPORT

The Tri-County Drinking Water System is currently operating at 92.95% efficiency with the water taken from Lake Erie that is treated and sent to the distribution systems. Chart 1 below shows the raw water takings compared to the treated water distributed to the distribution system so far in 2024.

Chart 1: Average daily water takings compared to treated water distributed to the distribution system



Raw water is sampled on a weekly basis and tested for E. coli and Total coliforms as per regulatory requirements. There are no limits identified in the regulations for E. coli and total coliform found in the raw water source. Table 1 below identifies the sample results for the first quarter.

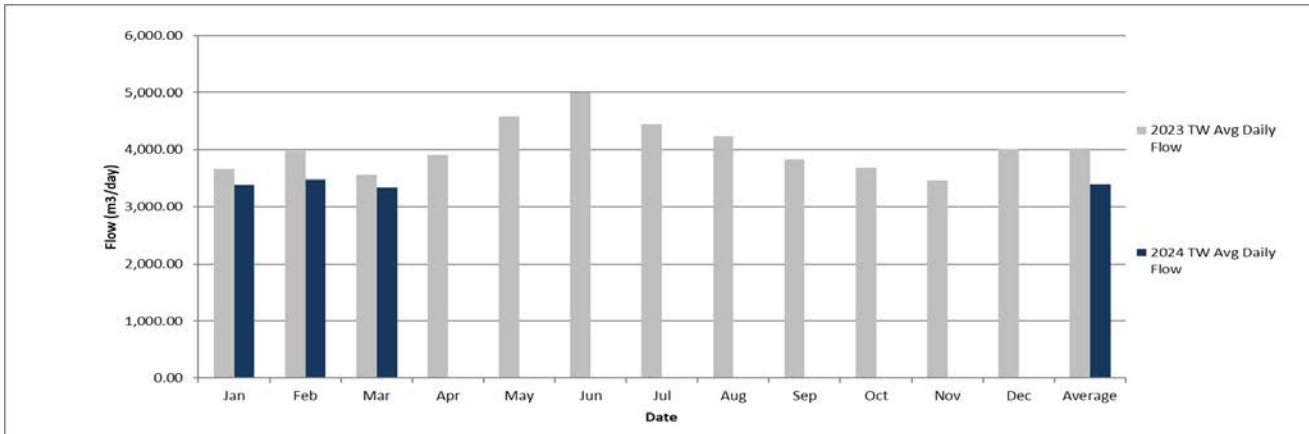
Table 1: Raw water sample results 2024

	# Samples	E. Coli Range (cfu/100mL)	Total Coliform Range (cfu/100mL)
January	5	<4 - <100	280 – 12500
February	4	<2 – <10	260 – 5600
March	4	<2 - <100	12 – 800

The raw water is treated through membrane filtration and chlorine disinfection. The treated water is distributed to the systems it serves through the high lift pumps. The average daily treated water sent to the distribution in 2024 so far is 3,400.6 m³/d. The average treated water flow in the first quarter of 2024 is down

8.8% when compared against the average daily flow in the first quarter of 2023. The Tri-County Drinking Water System is currently at 28.0% of its rated capacity. Chart 2 below depicts the treated water flow for 2024 compared to 2023 average daily flows.

Chart 2: Treated water average daily flow in 2024 compared to 2023



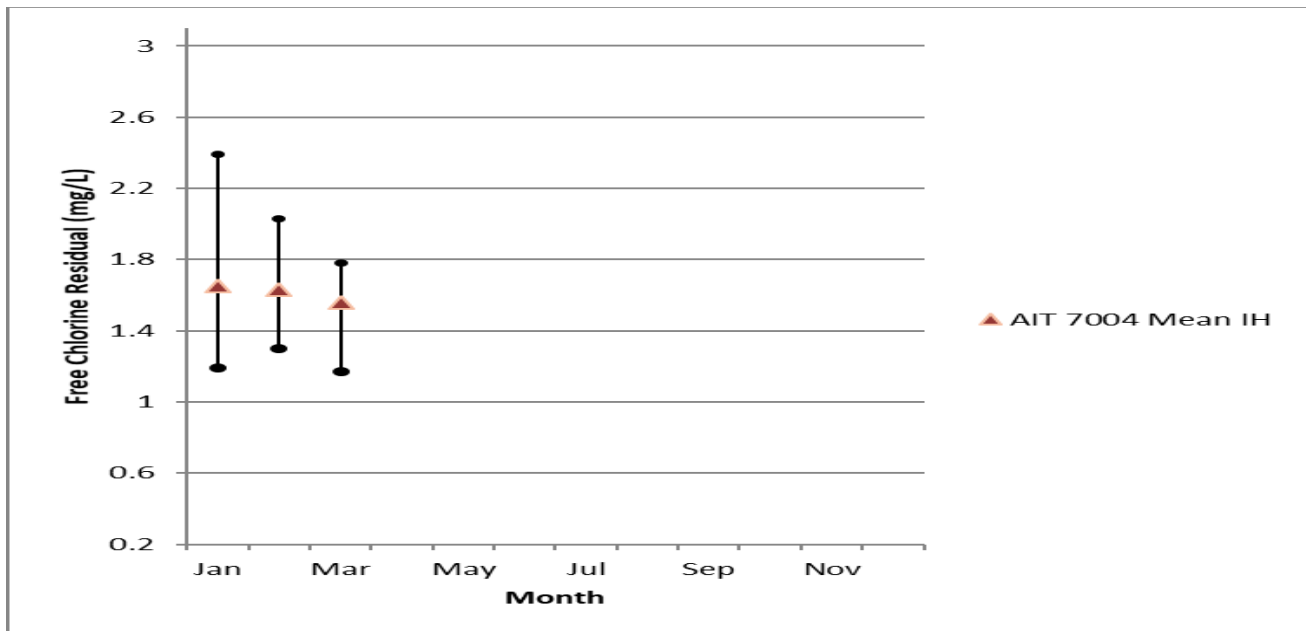
To ensure inactivation of viruses, bacteria and microorganisms the membrane filtration system is required to meet performance criteria for filtered water turbidity of less than or equal to 0.1 NTU in 99% of the measurements each month. The Tri-County Water Treatment Plant has met all regulatory requirements for inactivation in 2024. Table 2 below shows the performance of each filter rack and the overall filter rack performance.

Table 2: Filter Rack Performance in 2024

	Rack 1 % Readings <0.1ntu	Rack 2 % Readings <0.1ntu	Rack 3 % Readings <0.1ntu	Rack 4 % Readings <0.1ntu	Overall Filter Performance (% readings <0.1ntu)
January	100.00	100.00	100.00	100.00	100.00
February	100.00	100.00	100.00	100.00	100.00
March	100.00	100.00	100.00	99.90	99.98

Along with turbidity, chlorine residuals are monitored throughout the treatment process by continuous online free chlorine analyzers. Residuals are maintained in order to provide adequate primary disinfection to meet inactivation of viruses, bacteria and microorganisms. The chlorine also provides adequate residuals in the distribution systems the treatment plant serves (secondary disinfection). Chart 3 below provides the online minimum, maximum and average readings of free chlorine provided to the distribution systems. All results have met regulatory requirements.

Chart 3: Distribution System Free Chlorine Residuals



On a weekly basis the treated water is tested for E. coli, Total Coliforms and heterotrophic plate count (HPC). The limit for Total Coliform and E. coli is zero. There is no limit specified for heterotrophic plate count (HPC) as this is an operational guide to initiate an action plan if HPC results are continuously high. Table 3 below shows the number of samples taken each month along with the range of results. All samples have met regulatory requirements.

Table 3: Treated water sample results for 2024

	# Samples	Total Coliform Range (cfu/100mL)	E. coli Range (cfu/100mL)	HPC (cfu/100mL)
January	5	0 - 0	0 - 0	<10 - <10
February	4	0 - 0	0 - 0	<10 - <10
March	4	0 - 0	0 - 0	<10 - <10

The transmission main (distribution system) is sampled on a weekly basis at two locations for E. coli, Total Coliforms and heterotrophic plate count (HPC) to meet regulatory requirements. As with the treated water the limit for Total Coliform and E. coli is zero, heterotrophic plate count (HPC) doesn't have a limit. This is an operational guide to initiate an action plan if HPC results are continuously high. Table 4 below shows the number of samples taken each month along with the range of results.

Table 4: Distribution system sample results for 2024

	# Samples	Total Coliform Range (cfu/100mL)	E. coli Range (cfu/100mL)	HPC (cfu/100mL)
January	10	0 - 0	0 - 0	<10 – <10
February	8	0 - 0	0 - 0	<10 – <30
March	8	0 - 0	0 - 0	<10 – <30

On a quarterly basis trihalomethanes are tested at two locations in the system. The first location is at the treatment plant prior to the water leaving the facility. The second location is at the end of the system, at the West Lorne Standpipe. Sampling from both locations provides information on how the THMs are forming in the system with retention time. There is an issue with elevated THMs in the distribution systems that the Tri-County Drinking Water System provides water to. Table 5 below provides the running average quarterly results; the running average limit for THMs is 100µg/L. All results are within regulatory requirements. However, THMs increase with increased retention time therefore THMs in the distribution system the WTP serves can be much higher, even reaching the regulatory limit.

Table 5: Trihalomethane sampling results

	Limit (µg/L)	Treated Water THM Result (µg/L)	West Lorne Standpipe THM Result (µg/L)
April 2023		20	30
July 2023		33	54
October 2023		55	82
January 2024		19	32
Running Average	100	31.75	49.5

On a quarterly basis Haloacetic Acids (HAAs) are tested as per regulatory requirements. They are sampled at two locations in the system. The first location is at the treatment plant prior to the water leaving the facility. The second location is at the end of the system, at the West Lorne Standpipe. Sampling from both locations provides information on how the HAAs are forming in the system with retention time. Table 6 below provides the current running average quarterly results; the running average limit for HAAs is 80µg/L. All results are within regulatory requirements.

Table 6: Haloacetic Acid sampling results

	Limit (µg/L)	Treated Water HAA Result (µg/L)	West Lorne Standpipe HAA Result (µg/L)
April 2023		5.6	15.4
July 2023		16.6	24.2
October 2023		19.4	29.8
January 2024		12.4	18.6

SECTION 5: OCCUPATIONAL HEALTH & SAFETY

FIRST QUARTER:

There were no additional Health & Safety issues identified in the first quarter.

SECTION 6: GENERAL MAINTENANCE

FIRST QUARTER:

JANUARY

- 16: Gerber Electric on-site to train staff on new procedure for generator run tests.
- 18: Ontario Compressor on-site for routine compressor servicing/inspection.
- 25: Eramosa on-site to recertify our Microsoft office product key on SCADA computer for excel.
- 29: Gerber replaced heater in the low lift. Unit is working and on.
- 31: Nevro replaced storage tank T-6010 6" drain valve.

FEBRUARY

- 19: Installed new actuator on flow control valve-3301 due to it failing multiple times over the weekend.
- 26: While investigating valve 3315 it appears that when the valve is open it takes a while for the system to recognize it's open and sending out an error signal. Replaced actuator position sensor with spare.
- 27: Gerber on-site to look at faulting drain pump and install new heater in low lift building and chlorine gas building.

MARCH

- 4: SCG Flowmetrix on-site for annual flow meter calibration and verifications.
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- 11: Nevro on-site to take Process drain pump 9010 out for inspection and possible replacement.
- 11: Martins Lift Truck on-site for annual forklift inspection and service.
- 12: Watech on-site at standpipe for graffiti removal.
- 21: Martins Lift Truck on-site to service forklift.
- 27: Southwest Mechanical on-site at standpipe to repair leaking copper line for pressure sensor.
- 28: Gerber on-site for quarterly HVAC inspection.

SECTION 7: ALARM SUMMARY

FIRST QUARTER:

JANUARY

- 19: Alarm call for Rack 1 HIHI turbidity shut down. Operator arrived on-site and found unit reading okay. Likely due to debris coming loose following an air scrub on rack.
- 23: Alarm call for storage tank T-6020 LOLO. Due to suspected fog causing false low reading on milltronics.
- 30: Alarm call for Rodney Tower HIHI Cl. Operator reviewed remotely and saw Cl reading was coming down. Continued to monitor and Cl returned to normal readings.

FEBRUARY

- 2: Received call from spectrums for suction header chlorine fault, verified analyzer is reading correctly and increased cl dosage set point from 1.85 to 2.00.
- 4: Received alarm from spectrums for Rodney tower fault. Arrived on-site and found Rodney tower Cl holding a max value of 4.90 and had a signal error alarm active. The system suddenly got connection again and all alarms cleared had SWM operator go to site to verify.
- 17: Received alarm for PALL system critical failure. Alarm is for too few racks due to rack 2 disabling from high high pressure because of Rack 2 inlet flow control valve-3201 smart positioner failing. Replaced pilot system on smart positioner.
- 18: Received alarm for PALL system critical failure. Alarm is for too few racks due to rack 3 disabling from high high pressure because of Rack 3 inlet valve flow control valve-3301 smart positioner failing. Performed calibration on rack #3 flow control valve-3301 smart positioner.
- 26: Received alarm from spectrums for PALL system critical failure. Found that Clean in Place return valve 3315 had failed, placed rack into manual and exercised valve multiple times. Placed valve back into auto and appears to be running normally, will monitor throughout the day.

MARCH

- 1: Received alarm call for filtrate storage tank fault. Two low lift pumps now running and keeping up with demand.
- 2: Received alarm call for filtrate storage tank fault. Confirmed with SOP, changed tank 6010 LO set point from 7-6.4.
- 9: Received alarm call from Spectrum for All Systems Critical Failure. Observed a suspected PLC glitch that disabled the rack, placed back in duty and rack now on and running.
- 23: Received alarm for PALL critical failure rack 3 had disabled due to high pressure, put rack in manual and opened vent valve which brought pressure down, cleared alarms, placing rack back into forward flow.
- 30: Received alarm from spectrums for pall system critical failure. Adjusted actuator sensor and rack now running fine.

SECTION 8: COMMUNITY COMPLAINTS & CONCERNS

FIRST QUARTER:

There were no complaints or concerns reported during the first quarter.