



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Tri County Drinking Water System
Operations Report
Second Quarter 2024

Ontario Clean Water Agency, Southwest Region
Sam Smith, Sr. Operations Manager
Date: September 24, 2024

Facility Description

Facility Name: Tri-County Drinking Water System
Regional Manager: Sam Sianas (519) 319-2233
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.

SECOND QUARTER:

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

SECTION 2: INSPECTIONS

FIRST QUARTER:

On January 24th, a routine inspection was conducted at the Tri-County Drinking Water System by the MECP. All follow-up questions have been answered. The report has not yet been received.

SECOND QUARTER:

There were no Ministry of Environment, Conservation and Parks (MECP) or MOL inspections conducted during the second quarter however, the MECP Inspection Report and Rating were received on May 6th, 2024 for the inspection that occurred on January 24th. There were no non-compliances identified and the system received a rating of 100%.

SECTION 3: QEMS UPDATE

FIRST QUARTER:

The Municipal Drinking Water License expires on July 15th, 2024. The application for the renewal was due January 15th, 2024. The application has been sent to the MECP however, the Financial Plan required updates to meet the requirements of the regulation. Once the Tri-County Water Board has the Financial Plan updated it will be submitted to the MECP.

SECOND QUARTER:

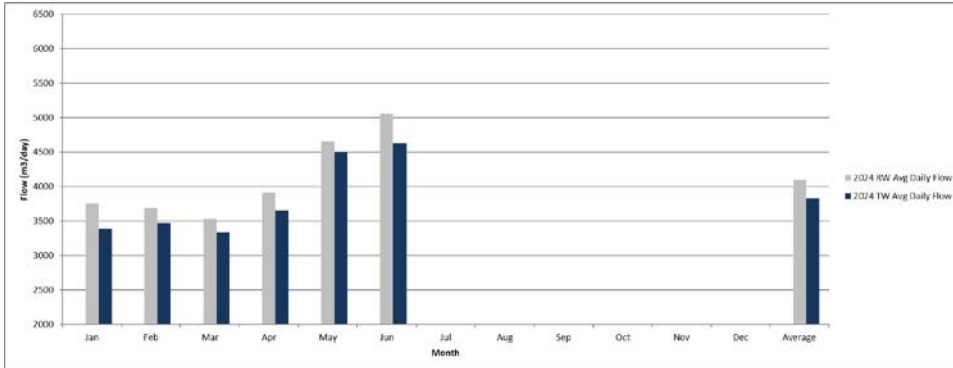
The Essential/Emergency Service and Supply Contact List was updated on April 29th, 2024. Changes were made to Client Contacts as well as OCWA Staff. The list is currently in its 36th revision.

On June 14th, 2024 the signed Municipal Drinking Water License and Drinking Water Works Permit were received from the MECP.

SECTION 4: PERFORMANCE ASSESSMENT REPORT

The Tri-County Drinking Water System is currently operating at 93.43% 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



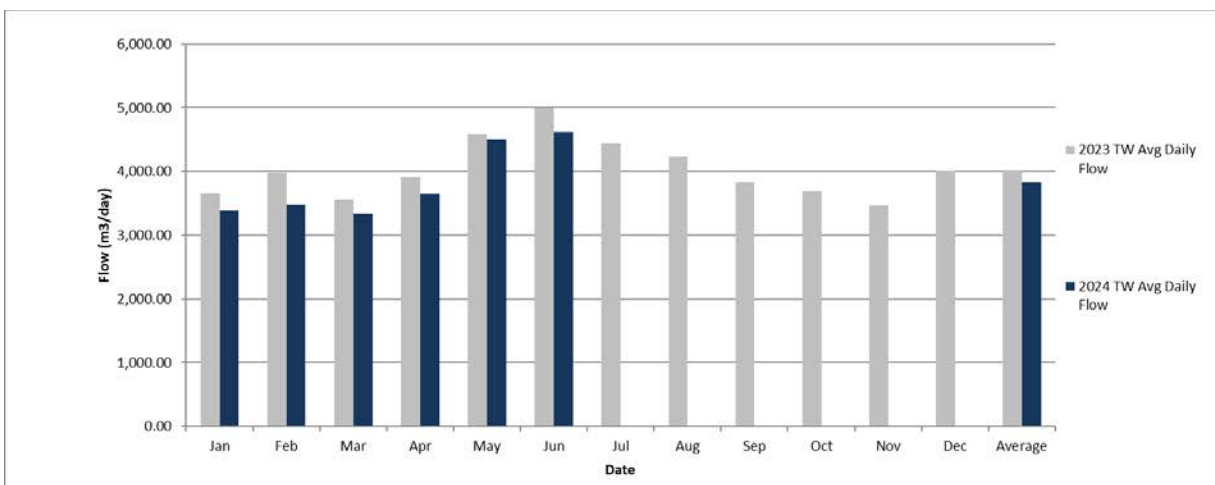
Raw water is sampled on a weekly basis and tested for E. coli and Total coliforms as per regulatory requirements. There are no limits identified in the regulations for E. coli and total coliform found in the raw water source. Table 1 below identifies the sample results for the first quarter.

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
April	5	<2 - <100	26 - 520
May	4	<10 - <100	120 - 13600
June	5	<10 - <100	280 - 2800

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 3,831.6m³/d. The average treated water flow in the second quarter of 2024 is down 11.5% when compared against the average daily flow in the second quarter of 2023. The Tri-County Drinking Water System is currently at 31.5% 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



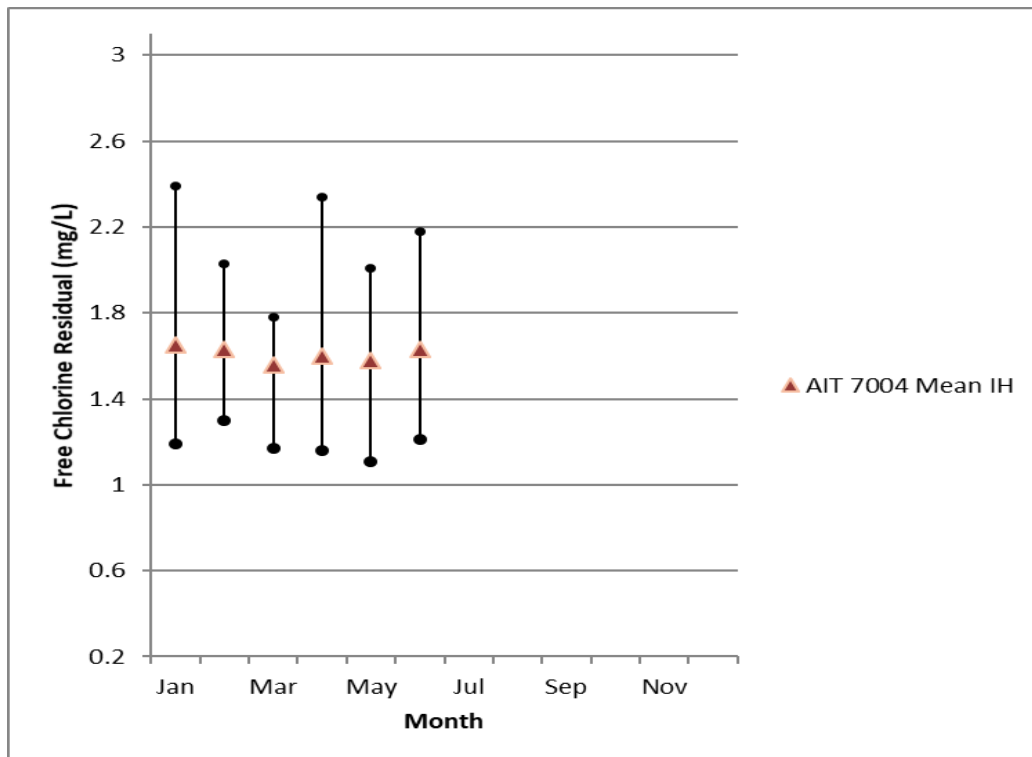
To ensure inactivation of viruses, bacteria and microorganisms the membrane filtration system is required to meet performance criteria for filtered water turbidity of less than or equal to 0.1 NTU in 99% of the measurements each month. The Tri-County Water Treatment Plant has met all regulatory requirements 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
April	100.00	100.00	100.00	99.90	99.98
May	100.00	100.00	100.00	99.90	99.98
June	100.00	100.00	100.00	100.00	100.00

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
April	5	0 - 0	0 - 0	<10 – <10
May	4	0 - 0	0 - 0	<10 – <10
June	5	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
April	10	0 - 0	0 - 0	<10 – <10
May	8	0 - 0	0 - 0	<10 – <10
June	8	0 - 0	0 - 0	<10 – <10

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)
July 2023		33	54
October 2023		55	82
January 2024		19	32
April 2024		14	28
Running Average	100	30.25	49.0

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)
July 2023		16.6	24.2
October 2023		19.4	29.8
January 2024		12.4	18.6
April 2024		5.3	15.1
Running Average	80	13.43	21.93

SECTION 5: OCCUPATIONAL HEALTH & SAFETY

FIRST QUARTER:

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

SECOND QUARTER:

On April 9th the annual occupational health and safety inspection was completed. There were no issues identified. There were no additional Health & Safety issues identified in the second 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: Nevtro 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.
- 5: SCG Flowmetrix on-site for annual flow meter calibration and verifications.
- 6: SCG Flowmetrix on-site for annual flow meter calibration and verifications.

- 11: Nevtro 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.

SECOND QUARTER:

APRIL

- 3: Courtney from Eramosa onsite, confirmed standpipe PLC Is no longer functioning.
- 3: Courtney from Eramosa onsite to fix programming issue with high lift pumps not running in pressure mode as we cannot see level due to PLC failure.
- 5: Brian from Gerber onsite for PLC upgrades at Standpipe.
- 5: Eramosa onsite for PLC upgrades at Standpipe.
- 8: Gerber onsite to investigate issue with Low Lift generator randomly turning on and not shutting down.
- 8: Alberts generator onsite, Alberts found chewed wire ribbons in the control box of the generator and thinks this is the possible issue. Alberts will get us a quote on new ribbons.
- 9: Courtney from Eramosa onsite to fix issue with Standpipe data trending not showing.
- 9: Courtney from Eramosa investigated Silver Clay comm loss and found controller had lost comms causing it to lose its code, Courtney reprogrammed code.
- 11: Ontario Compressor onsite for routine compressor servicing/inspection.
- 16: Southwest mechanical onsite for barbed wire fence installation.
- 24: Southwest mechanical onsite to repair leaking line on altitude valve in Standpipe

MAY

- 8: Alberts generator onsite to fix wiring issue with low lift generator.
- 10: Southwest Mechanical onsite to look at blower exhaust fan for low lift chlorine building.
- 28: Nevtro on-site for pre work before high lift header replacement.
- 28: SCG Flowmetrix onsite to trouble shoot storage tank level transducer issue. Had to reprogram T-6010 milltronics.
- 29: Martins lift truck on-site to inspect issue with forklift.
- 30: Martins delivered rental forklift and took ours to their shop to inspect.

JUNE

- 3: Took SCBA tank and masks to Levitt Safety for inspection/certification.
- 6: Nevtro onsite to replace high lift header piping.
- 7: Miller dropped off large dumpster bin for next week's rack removal.
- 11: Aria Filter onsite to guide OCWA team with replacing rack 2 filter modules.
- 12: Aria Filter onsite to guide OCWA team with replacing rack 2 filter modules.
- 13: Aria Filter onsite to help finish with rack 2 filter module replacement.
- 19: Stephan from Gerber electric onsite to troubleshoot issue with UV MCP power issue. Gerber found no issue. Eramosa called in to troubleshoot issue. They made an edit to the programming to bypass issue of UV inlet and outlet motive valves not showing open and let the plant start running.
- 20: Gerber and Eramosa back onsite to troubleshoot UV MCP/UV inlet & outlet valves issue. Found a failed PLC card and Eramosa will order a new one.
- 21: Courtney from Eramosa onsite to replace faulty PLC card. Replaced card and reverted programming edits made on June 19.
- 26: SCG onsite for flow meter calibrations.
- 27: SCG onsite for flow meter calibrations.

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.

SECOND QUARTER:

APRIL

- 13: Received call from spectrums for pall critical process failure. Logged onto SCADA found PALL system disabled air compressor 1 and 2 faulted. Suspected power flicker due to strong winds in area, cleared alarms and reset air compressors and was able to put plant back online.

MAY

- 20: Received alarm call for power flicker. Arrived onsite for inspection and cleared faulted equipment.
- 24: Received alarm call due to CP-2000 UPS failure. Replaced with spare until new batteries can be ordered.

- 25: Received alarm call for duty storage tank T-6010 fault. Reading was incorrect due to programming issue. Placed T-6020 milltronics reading in duty and will discuss with programmers on Monday.
- 28: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment.
- 29: Received alarm call for too few racks due to Rack 3 shut down caused by valve V-3302 failure. Changed air card with used spare and issue resolved.
- 31: Received alarm call for duty storage tank LO level. Found duty 2 low lift pump did not start when commanded likely due to PLC glitch. Reset commands and duty 2 started and plant is catching up.

JUNE

- 2: Received alarm call for too few racks due to Rack 3 shut down caused by HHI feed and filtrate pressure. Decreased low lift pump VFD speeds down from 95 to 90%. Increased rack inlet valve % open during raw strainer backwash.
- 4: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment.
- 16: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment.
- 17: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment. Power flickered several more times while onsite. Discussed with ORO and turned on generator for the night to prevent hard shutdowns on equipment.
- 18: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment.
- 18: Received alarm call for power flicker. Arrived onsite and reset faulted out equipment. Discussed with ORO and switched to generator power for a few hours before switching back to utility power.
- 24: Received alarm call for too few racks. Arrived onsite and found racks 1 and 2 filtrate turbidimeters were faulted and in error mode. Reset comms connection to units and readings returned to normal.
- 25: Received alarm call for too few racks due to Rack 3 being in idle due to air scrub watchdog timer, caused by raw strainers constantly going through backwash. Removed basket from strainer STR-2010 for night. Daytime operators will have to clean all strainer baskets in morning.

SECTION 8: COMMUNITY COMPLAINTS & CONCERNS

FIRST QUARTER:

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

SECOND QUARTER:

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