

# Dryden Drinking Water System Annual Water Quality Report

2025



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## Introduction

The City of Dryden (City) provides safe drinking water to its customers that meets and exceeds Ontario regulatory standards. As per requirements under the Safe Drinking Water Act 2002, and Ontario Regulation 170 /03, the City is required to produce an annual Water Quality Report which includes:

- An overview description of the water treatment plant process
- Major expenditures relating to expenses incurred for the installation, repair or upgrade of water system components
- Laboratory Results pertaining to water quality and the associated Provincial Standards
- A review of incidents and regulatory non-compliance events, including corrective actions taken
- Quantities of water produced with a comparison to the systems rated capacities and provincially approved flow rates

## Dryden Drinking Water System

**Municipal Drinking Water licence: 223-101**

**Permit to Take Water: 1854-CXRS4K**

**Drinking Water System Number: 220001432**

The City's Water Treatment Plant (WTP) is located at 250 Wilde Street in Dryden, Ontario and produces drinking water for 2,254 residential and 287 commercial connections. Raw water is pulled from Lake Wabigoon as per the provincially approved Permit to Take Water.

The WTP is a Level 2 treatment facility and is considered to be a conventional treatment process. The process includes coagulation of the raw water, sedimentation through a solids contact clarifier, followed by dual media filtration (anthracite/sand), and followed up with chlorine disinfection before distribution to customers. The treatment chemicals used in the process are as follows:

- Chlorine Gas for disinfection
- Aluminum Sulphate for coagulation
- Non-Ionic Polymer to aid coagulation
- Calcium Hydroxide (Lime) for pH adjustment

Control of the WTP is facilitated through a Supervisory Control and Data Acquisition (SCADA) system that is monitored 24-hours per day by, seven days per week by Public Works Staff. The produced treated water is continuously pumped and pressurized into the Drinking Water System which distributes safe drinking water to residents, consumers, and water haulage customers.

## Dryden Water Distribution System

The City’s Water Distribution System consists of a combination of cast iron, and Poly Vinyl Chloride piping in various sizes for a total length of approximately 70km. Water pressurization and storage is provided onsite at the WTP for the City.

## 2025 Capital Improvements

In this calendar year, approximately \$290,000 was spent on the drinking water system consisting via capital upgrades. The projects included:

| Project Name                           | Expense Type | Location           | Value     |
|--|--------------|--------------------|-----------|
| <b>Valve Installation and Repair</b>   | Replacement  | Water Distribution | \$140,000 |
| <b>Van Horn Extension of Services</b>  | Design       | Water Distribution | \$50,000  |
| <b>Water Treatment Overload Relay</b>  | Upgrade      | Water Treatment    | \$75,000  |
| <b>Watermain Upgrade – St. Charles</b> | Design       | Water Distribution | \$30,000  |

In addition to capital upgrades the City also repairs and maintains existing infrastructure. Over this calendar year, repairs were conducted to ten (10) watermains, five (5) service line leaks, six (6) valve replacements and four (4) valve installations for new services.

## Water Quality Testing

In accordance with the Safe Drinking Water Act 2002 and other prescribed regulations, the City performs water quality tests every day. Tests include microbiological, organic and inorganic properties on the treated water. Operational sampling and distribution sampling assess treatment capabilities and ensuring safe drinking water from plant to tap.

## Operational Testing

The City’s WTP uses many analyzers to ensure the plant is running within prescribed regulations. Continuous monitoring analyzers measure and record results for chlorine residual, and turbidity several times per minute, twenty-four hours per day, seven days per

week. Analyzer readings are validated by an on-site operator and are reviewed by the Ministry of the Environment Conservation and Parks (MECP) through inspection activities.

Chlorine residuals are also measured by operators across the distribution system to ensure that water quality is maintained throughout the system.

At any time, either in the WTP or distribution system, if water is determined to be “Adverse” (not meeting Provincial Regulations), it is immediately reported as an Adverse Water Quality Incident (AWQI) and corrective actions are initiated.

In-house testing for some parameters is used to assess analyzer accuracy, and to aid in process control decisions. A summary of in-house testing results are tabled below.

## Summary of Operational Testing Results

### *Water Treatment Plant Monitoring Results*

| Parameter                 | Units | # of Samples | Minimum Result | Maximum Result |
|---------------------------|-------|--------------|----------------|----------------|
| Raw Water Turbidity       | NTU   | 365          | 6.01           | 23.7           |
| Raw Water pH              | pH    | 358          | 7              | 7.7            |
| Raw Water Colour          | PtCo  | 364          | 5              | 51             |
| Treated Chlorine Residual | mg/L  | 365          | 1.26           | 1.74           |
| Treated Turbidity         | NTU   | 365          | 0.033          | 0.77           |

### **Terminology**

Residual: Concentration of active component in the water

NTU: Nephelometric Turbidity unit – Measures the presence of suspended material in water no greater than 1 unit (>1.0)

pH: A unit that expresses acidity or alkalinity

PtCo: Platinum Cobalt Colour Scale – Assesses organic levels in water

### **City of Dryden Operational Standards for Treated Water**

Chlorine Residual Requiring Action: <1.4mg/L, >1.65mg/L

NTU: Nephelometric Turbidity unit – Measures the presence of suspended material in water no greater than 1 unit (>1.0)

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## Water Distribution Monitoring Results

| Parameter                                    | Units | # of Samples | Minimum Result | Maximum Result | Adverse* |
|--|-------|--------------|----------------|----------------|----------|
| Routine Distribution Chlorine Residual       | mg/L  | 311          | 0.13           | 1.37           | No       |
| Non-Routine Distribution Chlorine Residuals* | mg/L  | 1            | 0.86           | 0.86           | No       |

\*Noted in Adverse Results Notifications if applicable

### Terminology

Routine sampling is prescribed by regulation

Non-Routine sampling needed to support watermain repairs, construction activities and water quality complaints

### City of Dryden Operational Standards for Distribution Chlorine Residual:

Chlorine Residual Reportable: <0.2mg/L, >.8mg/L

## Microbial Testing Results

Below is a summary of microbial sampling results from routine monitoring of the raw water, treated water, and distribution sampling locations to monitor water quality.

|               | Number of Samples | E. Coli Results (min -max) | Total Coliform Results (min-max) | Number of Heterotrophic Plate Count Samples | Heterotrophic Plate Count Results (min-max) |
|---------------|-------------------|----------------------------|----------------------------------|---|---|
| Raw Water     | 52                | 0 - 4                      | 0 - 41                           | 0   |   |
| Treated Water | 52                | 0                          | 0                                | 52  | 0 - <10*                                    |
| Distribution  | 311               | 0                          | 0                                | 103   | 0 - <10*                                    |
| Non-Routine   | 0                 |                            |                                  |   |   |

### Terms

Raw Water – Source Water (Lake Wabigoon) Entering the treatment process

Treated Water – Safe drinking Water for distribution to residents

Distribution – 6 (Six) sample locations across the water distribution system to ensure safe drinking water quality

\* - <10 is non-detectable

### Microbiological standards for treated and distributed water:

E.coli - Non Detectable

Total Coliforms - Non Detectable

Heterotrophic Plate Counts (HPC) - Samples are conducted on some treated and distribution system samples. The HPC test is used as a tool to monitor overall quality, but the results are not indicators of water safety. There is no Drinking Water Quality Standard for HPC

Non-Routine – As a result of AWQI's

## Chemical Testing Results

### In-Inorganic Parameters – Treated Water

| Parameter | Sample Date     | Units | WTP Result | Standard Limit | Exceedance of Standard |
|-----------|-----------------|-------|------------|----------------|------------------------|
| Antimony  | January 7, 2025 | µg/L  | <0.5       | 6              | No                     |
| Arsenic   | January 7, 2025 | µg/L  | <1         | 10             | No                     |
| Barium    | January 7, 2025 | µg/L  | 7          | 1000           | No                     |
| Boron     | January 7, 2025 | µg/L  | <2         | 5000           | No                     |
| Cadmium   | January 7, 2025 | µg/L  | <0.1       | 5              | No                     |
| Chromium  | January 7, 2025 | µg/L  | <1         | 50             | No                     |
| Mercury   | January 7, 2025 | µg/L  | <0.1       | 1              | No                     |
| Selenium  | January 7, 2025 | µg/L  | <0.2       | 50             | No                     |
| Sodium    | January 7, 2025 | mg/L  | 3.27       | 20             | No                     |
| Uranium   | January 7, 2025 | µg/L  | <0.5       | 20             | No                     |

#### Terminology

µg/L – concentration in micrograms per liter

<# - Indicates below detection limit of that specific analysis, non-detectable result

### Organic Parameters – Treated Water

| Parameter                                  | Sample Date     | Units | WTP Result | Standard Limit | Exceedance of Standard |
|--|-----------------|-------|------------|----------------|------------------------|
| Alachlor                                   | January 7, 2025 | µg/L  | <0.241     | 5              | No                     |
| Atrazine + N-dealkylated metabolites       | January 7, 2025 | µg/L  | <0.5       | 5              | No                     |
| Azinphos-methyl (Guthion)                  | January 7, 2025 | µg/L  | <0.181     | 20             | No                     |
| Benzene                                    | January 7, 2025 | µg/L  | <0.1       | 1              | No                     |
| Benzo(a)pyrene                             | January 7, 2025 | µg/L  | <0.01      | 0.01           | No                     |
| Bromoxynil                                 | January 7, 2025 | µg/L  | <0.105     | 5              | No                     |
| Carbaryl                                   | January 7, 2025 | µg/L  | <2         | 90             | No                     |
| Carbofuran                                 | January 7, 2025 | µg/L  | <4         | 90             | No                     |
| Carbon Tetrachloride                       | January 7, 2025 | µg/L  | <0.2       | 2              | No                     |
| Chlorobenzene                              | January 7, 2025 | µg/L  | <0.5       | 80             | No                     |
| Chlorpyrifos (Dursban)                     | January 7, 2025 | µg/L  | <0.181     | 90             | No                     |
| Diazinon                                   | January 7, 2025 | µg/L  | <0.181     | 20             | No                     |
| Dicamba                                    | January 7, 2025 | µg/L  | <0.0915    | 120            | No                     |
| Dimethoate                                 | January 7, 2025 | µg/L  | <0.181     | 20             | No                     |
| 1,2-Dichlorobenzene                        | January 7, 2025 | µg/L  | <0.2       | 200            | No                     |
| 1,4-Dichlorobenzene                        | January 7, 2025 | µg/L  | <0.3       | 5              | No                     |
| 1,2-Dichlorethane                          | January 7, 2025 | µg/L  | <0.2       | 5              | No                     |
| 1,1-Dichloroethylene (vinylidene chloride) | January 7, 2025 | µg/L  | <0.3       | 14             | No                     |
| Dichloromethane                            | January 7, 2025 | µg/L  | <1         | 50             | No                     |
| 2,4-Dichlorophenol                         | January 7, 2025 |       | <0.2       | 900            | No                     |
| 2-4-Dichlorophenoxy acetic acid (2,4-D)    | January 7, 2025 | µg/L  | <0.392     | 100            | No                     |
| Diclofop-methyl                            | January 7, 2025 | µg/L  | <0.131     | 9              | No                     |

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| Parameter   | Sample Date                       | Units | WTP Result | Standard Limit | Exceedance of Standard |
|---|-----------------------------------|-------|------------|----------------|------------------------|
| Dimethoate  | January 7, 2025                   | µg/L  | <0.181     | 20             | No                     |
| Diquat  | January 7, 2025                   | µg/L  | <0.2       | 70             | No                     |
| Diuron  | January 7, 2025                   | µg/L  | <7         | 150            | No                     |
| Glyphosate  | January 7, 2025                   | µg/L  | <20        | 200            | No                     |
| Distribution HAA (Running Annual Average)                             | Jan 7, Jul 2, Mar 31, Oct 6, 2025 | µg/L  | 56         | 80             | No                     |
| 2-Methyl-4-chlorophenoxyacetic acid (MCPA)                            | January 7, 2025                   | µg/L  | <6.54      | 100            | No                     |
| Malathion   | January 7, 2025                   | µg/L  | <0.181     | 190            | No                     |
| Metolachlor   | January 7, 2025                   | µg/L  | <0.121     | 50             | No                     |
| Metribuzin (Sencor)   | January 7, 2025                   | µg/L  | <0.121     | 80             | No                     |
| Nitrate (Maximum of all 4 samples)                                    | Jan 7, Jul 2, Mar 31, Oct 6, 2025 | µg/L  | <0.05      | 10             | No                     |
| Nitrite (Maximum of all 4 samples)                                    | Jan 7, Jul 2, Mar 31, Oct 6, 2025 | µg/L  | <0.05      | 1              | No                     |
| Paraquat  | January 7, 2025                   | µg/L  | <0.2       | 10             | No                     |
| Pentachlorophenol   | January 7, 2025                   | µg/L  | <0.3       | 60             | No                     |
| Phorate   | January 7, 2025                   | µg/L  | <0.121     | 2              | No                     |
| Picloram  | January 7, 2025                   | µg/L  | <0.0915    | 190            | No                     |
| Polychlorinated Biphenyls (PCB)                                       | January 7, 2025                   | µg/L  | <0.06      | 3              | No                     |
| Prometryne  | January 7, 2025                   | µg/L  | <0.0603    | 1              | No                     |
| Simazine  | January 7, 2025                   | µg/L  | <0.181     | 10             | No                     |
| Distribution Tri-halomethane (THM – Quarterly Running Annual Average) | Jan 7, Jul 2, Mar 31, Oct 6, 2025 | µg/L  | 60         | 100            | No                     |
| Terbufos  | January 7, 2025                   | µg/L  | <0.121     | 1              | No                     |
| Tetrachloroethylene (perchloroethylene)                               | January 7, 2025                   | µg/L  | <0.3       | 10             | No                     |
| 2,3,4,6-Tetrachlorophenol   | January 7, 2025                   | µg/L  | <0.3       | 100            | No                     |
| Triallate   | January 7, 2025                   | µg/L  | <0.121     | 230            | No                     |
| Trichloroethylene   | January 7, 2025                   | µg/L  | <0.2       | 5              | No                     |
| 2,4,6-Trichlorophenol   | January 7, 2025                   | µg/L  | <0.2       | 5              | No                     |
| Trifluralin   | January 7, 2025                   | µg/L  | <0.121     | 45             | No                     |
| Vinyl Chloride  | January 7, 2025                   | µg/L  | <0.1       | 1              | No                     |

### Terminology

µg/L – concentration in micrograms per liter

<# - Indicates below detection limit of that specific analysis, non-detectable result

## Adverse Results Notifications

There were no Adverse Water Quality Incidents for the 2025 operating year.

## Lead Sampling Results

The City, as per Schedule 15.1 of Ontario Regulation 170/03, meets the requirements for reduced lead sampling of the drinking water system. Previous rounds of residential plumbing sampling indicated that lead levels do not meet the threshold required for continued annual testing. As per the regulation, lead sampling is conducted from three distribution system locations every year. Lead sampling results are tabled below, and all remain under the regulatory limit.

| Sample Location                | Date           | Lead Results (µg/L) | Regulatory Limit (µg/L) | Exceedance |
|--------------------------------|----------------|---------------------|-------------------------|------------|
| Edgewater Drive Hydrant D078-0 | April 2 2025   | <0.1                | 10                      | No         |
| Heather Drive Hydrant B046-15  | April 2 2025   | <0.1                | 10                      | No         |
| Kennedy Road Hydrant DA005-351 | April 2 2025   | 0.5                 | 10                      | No         |
| Edgewater Drive Hydrant D078-0 | October 7 2025 | <0.1                | 10                      | No         |
| Heather Drive Hydrant B046-15  | October 7 2025 | <0.1                | 10                      | No         |
| Kennedy Road Hydrant DA005-351 | October 7 2025 | 0.3                 | 10                      | No         |

## Water Treatment Plant Production

### Treated Water Flow Data

For the 2025 operating year, the City’s WTP produced a total of 1,051,462 m<sup>3</sup> (cubic meters) of water for distribution to Dryden’s consumers. This highest daily flow took place in August, for a total of 3,984 m<sup>3</sup>/d. This is 29% of the plants rated capacity of 13,637 m<sup>3</sup>/d.

| Month     | Total Monthly Flow (m3) | Average Daily Flow (m3/d) | Maximum Daily Flow (m3/d) |
|-----------|-------------------------|---------------------------|---------------------------|
| January   | 85379                   | 2754                      | 2924                      |
| February  | 74328                   | 2655                      | 2957                      |
| March     | 82880                   | 2674                      | 2866                      |
| April     | 80358                   | 2679                      | 3162                      |
| May       | 93430                   | 3014                      | 3590                      |
| June      | 90868                   | 3029                      | 3431                      |
| July      | 88722                   | 2862                      | 3049                      |
| August    | 95782                   | 3090                      | 3984                      |
| September | 96043                   | 3201                      | 3488                      |
| October   | 91624                   | 2956                      | 3417                      |
| November  | 82492                   | 2750                      | 2943                      |
| December  | 89556                   | 2889                      | 3085                      |

## Raw Water Flow Data

In 2025, Dryden’s WTP pumped a total of 1,261,045m<sup>3</sup> (cubic meters) of water from Lake Wabigoon to be treated. This highest daily flow took place in September, for a total of 5031 m<sup>3</sup>/d. This is 37% of the plants rated Permit to Take Water at 13,637 m<sup>3</sup>/d.

| Month     | Total Monthly Flow (m <sup>3</sup> ) | Average Daily Flow (m <sup>3</sup> /d) | Maximum Daily Flow (m <sup>3</sup> /d) |
|-----------|--------------------------------------|--|--|
| January   | 104891                               | 3384                                   | 3970                                   |
| February  | 91507                                | 3268                                   | 3780                                   |
| March     | 101710                               | 3281                                   | 3703                                   |
| April     | 97753                                | 3258                                   | 3741                                   |
| May       | 109953                               | 3547                                   | 4780                                   |
| June      | 107864                               | 3595                                   | 4216                                   |
| July      | 105336                               | 3398                                   | 3745                                   |
| August    | 114102                               | 3681                                   | 4846                                   |
| September | 115248                               | 3842                                   | 5031                                   |
| October   | 109377                               | 3528                                   | 4675                                   |
| November  | 98096                                | 3270                                   | 3609                                   |
| December  | 105208                               | 3394                                   | 377                                    |

## Historic Treated Water Flow

Total treated water flow has remained relative stable over the past 10 years outside of the reductions associated with the Pandemic. The 2025 production rate is quite similar to what was recorded in 2015. There is the potential for increased water demand over the next few years, and production statistics will continue to be closely monitored.

| Year | Total Treated Water Flow (m <sup>3</sup> ) | Average Monthly Flow (m <sup>3</sup> /d) | Percent Change in Total Production to 2015 |
|------|--|--|--|
| 2015 | 1048068                                    | 2898                                     |  |
| 2016 | 1057281                                    | 2888                                     | 0.9%                                       |
| 2017 | 1027715                                    | 2815                                     | 1.9%                                       |
| 2018 | 1077142                                    | 2950                                     | 2.8%                                       |
| 2019 | 1029167                                    | 2821                                     | -1.8%                                      |
| 2020 | 1041267                                    | 2851                                     | -0.6%                                      |
| 2021 | 973927                                     | 2671                                     | -7.1%                                      |
| 2022 | 998055                                     | 2733                                     | -4.8%                                      |
| 2023 | 983994                                     | 2695                                     | -6.1%                                      |
| 2024 | 1015984                                    | 2775                                     | -3.1%                                      |
| 2025 | 1051462                                    | 2879                                     | 0.32%                                      |

## Operational Compliance

The City’s WTP was inspected by the MECP on April 7, 2025. One non-compliance was issued with respect to administrative record keeping requirements in relation to drinking

water system modifications. Specifically, two water main replacement projects did not have the required forms properly signed. This has been remedied by educating staff on the proper administrative procedurals. The final inspection rating for the year was 99.21%.

The City's water quality continues to meet and exceed regulatory requirements.

## More Information or Questions

This report is available to the public free of charge to anyone who requests a copy. An electronic copy is available on the City of Dryden's website, and anyone wanting to be provided a paper copy can make arrangement to pick one up from the Public Works Office. Any concerns or inquiries of this report can be directed to:

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