

# ANNUAL REPORT

ONTARIO REGULATION 170/03  
SECTION 11

## LORETTO HEIGHTS DRINKING WATER SYSTEM



**FOR THE PERIOD:  
JANUARY 1, 2018 – DECEMBER 31, 2018**

*Prepared for the Corporation of the Township of Adjala-Tosorontio  
by the Ontario Clean Water Agency*



**ONTARIO CLEAN WATER AGENCY  
AGENCE ONTARIENNE DES EAUX**



|                                 |  |
|---------------------------------|--|
| Drinking-Water System Number:   | 220005045  |
| Drinking-Water System Name:     | Loretto Heights Drinking Water System                |
| Drinking-Water System Owner:    | The Corporation of the Township of Adjala-Tosorontio |
| Drinking-Water System Category: | Small Municipal Residential                          |
| Period being reported:          | January 1, 2018 to December 31, 2018                 |

Does your Drinking-Water System serve more than 10,000 people?

No

Is your annual report available to the public at no charge on a web site on the Internet?

Yes

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Summary Report is available for inspection at the Township of Adjala-Tosorontio Municipal Office at 7855 Side Road 30, Alliston, ON or on the following website: <http://www.adjtos.ca>

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

| Drinking Water System Name | Drinking Water System Number |
|----------------------------|------------------------------|
| Not applicable             | Not applicable               |

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Not Applicable

Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method

**Description of Drinking-Water System:**

The Loretto Heights water system is classified as a Small Municipal Residential water system with 26 services. Water is supplied via one municipal well and pumphouse. Inspections and maintenance duties are conducted by Ontario Clean Water Agency staff on a regular basis to maintain compliance with Ontario Regulation 170/03 to ensure that the Loretto Heights water supply is safe to drink. *This system was connected with the Weca Drinking Water System as of December 14, 2018 and will operate under the Weca (Large Municipal Residential) DWS.*

**List of water treatment chemicals used during the reporting period:**

- Sodium Hypochlorite 12% Solution NSF, Primary Disinfection

**Significant expenses incurred to:**

- Install required equipment
- Purchase required equipment
- Repair required equipment
- Replace required equipment

**Description of significant expenses incurred:**

1. Drinking Water Quality Management Standard third-party certified audit of OCWA Quality & Environmental Management System.
2. Annual calibrations of handheld meters, backflow preventers, flow meters, etc.
3. Laboratory sample bottles and analysis.
4. Completed distribution system tie-in with Weca Drinking Water System.
5. Reprogrammed PLC/SCADA for tie-in work.
6. Installed data logger Red Lion screen and loop isolators.
7. Installed two baffle mixing tanks.
8. Installed sample station.
9. Repaired chlorine pumps.
10. Repaired diesel generator.
11. Replaced Uninterrupted Power Supply (UPS) unit.

**Details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre:**

| Incident Date (yyyy/mm/dd) | Parameter                                  | Result | Unit of Measure | Corrective Action   | Corrective Action Date (yyyy/mm/dd) |
|----------------------------|--|--------|-----------------|---|-------------------------------------|
| 2018/07/16                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #140617. | 2018/07/18                          |
| 2018/09/11                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #142649. | 2018/09/14                          |
| 2018/10/06                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #143431. | 2018/10/06                          |
| 2018/10/11                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #143511. | 2018/10/29                          |
| 2018/10/17                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #143590. | 2018/10/29                          |
| 2018/10/18                 | Adverse Observation: Improper Disinfection |        |                 | Increase chlorine dose and flushed system. Restored disinfection. For                                     | 2018/10/29                          |

|            |  |   |            |
|------------|--|---|------------|
|            |  | more detail, refer to AWQI #143592.   |            |
| 2018/10/21 | Adverse Observation: Improper Disinfection | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #143670. | 2018/10/29 |
| 2018/11/14 | Adverse Observation: Improper Disinfection | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #144067. | 2018/12/17 |
| 2018/11/15 | Adverse Observation: Improper Disinfection | Increase chlorine dose and flushed system. Restored disinfection. For more detail, refer to AWQI #144094. | 2018/12/17 |

**Table 1: Microbiological testing done under the Schedule 11 of Regulation 170/03 during this reporting period.<sup>^</sup>**

| Location          | Number of Samples | Range of E. Coli or Fecal Results |     | Range of Total Coliform Results |     | Number of HPC Samples | Range of HPC Samples |     |
|-------------------|-------------------|-----------------------------------|-----|---------------------------------|-----|-----------------------|----------------------|-----|
|                   |                   | Min                               | Max | Min                             | Max |                       | Min                  | Max |
| Raw - RW1         | 12                | 0                                 | 0   | 0                               | 8   | N/A                   | N/A                  | N/A |
| Distribution - DW | 25                | 0                                 | 0   | 0                               | 0   | 25                    | 0                    | 2   |

<sup>^</sup>Loretto Heights Well and Pumphouse added to Weca DWS as of December 14, 2018.

**Table 2: Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report.<sup>^</sup>**

| Location & Test                                     | Number of Samples | Range of Results |         |
|---|-------------------|------------------|---------|
|   |                   | Minimum          | Maximum |
| Turbidity, Raw (Grab) [NTU]                         | 12                | 0.38             | 0.65    |
| Free Chlorine Residual, Treated (Continuous) [mg/L] | 8760              | 0.00*            | 5.01+   |
| Free Chlorine Residual, Treated (Grab) [mg/L]       | 164               | 1.36             | 7.00    |
| Total Chlorine Residual, Treated (Grab) [mg/L]      | 162               | 1.59             | 7.30    |
| Free Chlorine Residual, Distribution (Grab) [mg/L]  | 103               | 1.49             | 4.80    |

Note: The number of samples used for a continuous monitoring unit is 8760.

<sup>^</sup>Loretto Heights Well and Pumphouse added to Weca DWS as of December 14, 2018.

\*Minimum chlorine residual was related to the adverse observations outlined in "Details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg. 170/03 and reported to Spills Action Centre" table above.

+The maximum treated free chlorine residual was due to a chlorine analyzer calibration; it was not an authentic chlorine residual that was distributed throughout the system.

**Table 3: Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.**

| Date of Legal Instrument Issued | Parameter | Date Sampled | Result | Unit of Measure |
|---------------------------------|-----------|--------------|--------|-----------------|
| Not Applicable                  |           |              |        |                 |

**Table 4: Summary of Inorganic parameters tested during this reporting period or the most recent sample results**

| Parameter                | Sample Date (yyyy/mm/dd) | Sample Result | Maximum Allowable Concentration (MAC) | Number of Exceedances |       |
|--------------------------|--------------------------|---------------|---------------------------------------|-----------------------|-------|
|                          |                          |               |                                       | MAC                   | ½ MAC |
| Antimony: Sb (µg/L) - TW | 2018/01/17               | <MDL 0.02     | 6.0                                   | No                    | No    |
| Arsenic: As (µg/L) - TW  | 2018/01/17               | 3.4           | 10.0                                  | No                    | No    |

| Parameter                | Sample Date (yyyy/mm/dd) | Sample Result | Maximum Allowable Concentration (MAC) | Number of Exceedances |       |
|--------------------------|--------------------------|---------------|---------------------------------------|-----------------------|-------|
|                          |                          |               |                                       | MAC                   | ½ MAC |
| Barium: Ba (µg/L) - TW   | 2018/01/17               | 99.8          | 1000.0                                | No                    | No    |
| Boron: B (µg/L) - TW     | 2018/01/17               | 177.0         | 5000.0                                | No                    | No    |
| Cadmium: Cd (µg/L) - TW  | 2018/01/17               | <MDL 0.003    | 5.0                                   | No                    | No    |
| Chromium: Cr (µg/L) - TW | 2018/01/17               | 0.18          | 50.0                                  | No                    | No    |
| Mercury: Hg (µg/L) - TW  | 2018/01/17               | <MDL 0.01     | 1.0                                   | No                    | No    |
| Selenium: Se (µg/L) - TW | 2018/01/17               | <MDL 0.04     | 50.0                                  | No                    | No    |
| Uranium: U (µg/L) - TW   | 2018/01/17               | 0.003         | 20.0                                  | No                    | No    |
| Fluoride: F (mg/L) - TW  | 2017/01/11               | 0.33          | 1.5                                   | No                    | No    |
| Nitrite (mg/L) - TW      | 2018/01/17               | <MDL 0.003    | 1.0                                   | No                    | No    |
| Nitrite (mg/L) - TW      | 2018/04/24               | <MDL 0.003    | 1.0                                   | No                    | No    |
| Nitrite (mg/L) - TW      | 2018/07/17               | <MDL 0.003    | 1.0                                   | No                    | No    |
| Nitrite (mg/L) - TW      | 2018/10/22               | <MDL 0.003    | 1.0                                   | No                    | No    |
| Nitrate (mg/L) - TW      | 2018/01/17               | 0.016         | 10.0                                  | No                    | No    |
| Nitrate (mg/L) - TW      | 2018/04/24               | 0.009         | 10.0                                  | No                    | No    |
| Nitrate (mg/L) - TW      | 2018/07/17               | 0.012         | 10.0                                  | No                    | No    |
| Nitrate (mg/L) - TW      | 2018/10/22               | 0.013         | 10.0                                  | No                    | No    |
| Sodium: Na (mg/L) - TW   | 2017/01/18               | 50.9          | 20*                                   | Yes                   | Yes   |

Note: MDL = Minimum Detection Limit

\*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.

**Table 5: Summary of lead testing under Schedule 15.1 during this reporting period**

| Location Type                | Number of Samples                                       | Range of Lead Results |         | MAC  | Number of Exceedances |
|------------------------------|---|-----------------------|---------|------|-----------------------|
|                              |   | Minimum               | Maximum |      |                       |
| Lead – Plumbing (µg/L)       | Not Applicable - Relief from all Plumbing Requirements* |                       |         |      |                       |
| Lead – Distribution** (µg/L) | 2   | 0.39                  | 0.58    | 10.0 | No                    |

Note: The Alkalinity results for 2018 were 183 and 192 mg/L as CaCO<sub>3</sub>.

\*This system qualifies for the plumbing exemption as per O. Regulation 170/03 Schedule 15.1-5 (9) (10).

\*\*Distribution lead samples are taken every 36 months. The next set of distribution lead samples is scheduled for 2021.

**Table 6: Summary of Organic parameters sampled during this reporting period or the most recent sample results**

| Parameter  | Sample Date (yyyy/mm/dd) | Sample Result | Maximum Allowable Concentration (MAC) | Number of Exceedances |       |
|--|--------------------------|---------------|---------------------------------------|-----------------------|-------|
|  |                          |               |                                       | MAC                   | ½ MAC |
| Alachlor (µg/L) - TW                             | 2018/11/27               | <MDL 0.02     | 5.00                                  | No                    | No    |
| Atrazine + N-dealkylated metabolites (µg/L) - TW | 2018/11/27               | <MDL 0.01     | 5.00                                  | No                    | No    |
| Azinphos-methyl (µg/L) - TW                      | 2018/11/27               | <MDL 0.05     | 20.00                                 | No                    | No    |
| Benzene (µg/L) - TW                              | 2018/11/27               | <MDL 0.32     | 1.00                                  | No                    | No    |

| Parameter   | Sample Date<br>(yyyy/mm/dd) | Sample<br>Result | Maximum<br>Allowable<br>Concentration<br>(MAC) | Number of<br>Exceedances |       |
|---|-----------------------------|------------------|--|--------------------------|-------|
|   |                             |                  |  | MAC                      | ½ MAC |
| Benzo(a)pyrene (µg/L) - TW                                | 2018/11/27                  | <MDL 0.004       | 0.01   | No                       | No    |
| Bromoxynil (µg/L) - TW                                    | 2018/11/27                  | <MDL 0.33        | 5.00   | No                       | No    |
| Carbaryl (µg/L) - TW                                      | 2018/11/27                  | <MDL 0.05        | 90.00  | No                       | No    |
| Carbofuran (µg/L) - TW                                    | 2018/11/27                  | <MDL 0.01        | 90.00  | No                       | No    |
| Carbon Tetrachloride (µg/L) - TW                          | 2018/11/27                  | <MDL 0.16        | 2.00   | No                       | No    |
| Chlorpyrifos (µg/L) - TW                                  | 2018/11/27                  | <MDL 0.02        | 90.00  | No                       | No    |
| Diazinon (µg/L) - TW                                      | 2018/11/27                  | <MDL 0.02        | 20.00  | No                       | No    |
| Dicamba (µg/L) - TW                                       | 2018/11/27                  | <MDL 0.2         | 120.00   | No                       | No    |
| 1,2-Dichlorobenzene (µg/L) - TW                           | 2018/11/27                  | <MDL 0.41        | 200.00   | No                       | No    |
| 1,4-Dichlorobenzene (µg/L) - TW                           | 2018/11/27                  | <MDL 0.36        | 5.00   | No                       | No    |
| 1,2-Dichloroethane (µg/L) - TW                            | 2018/11/27                  | <MDL 0.35        | 5.00   | No                       | No    |
| 1,1-Dichloroethylene (µg/L) - TW                          | 2018/11/27                  | <MDL 0.33        | 14.00  | No                       | No    |
| Dichloromethane (Methylene Chloride)<br>(µg/L) - TW       | 2018/11/27                  | <MDL 0.35        | 50.00  | No                       | No    |
| 2,4-Dichlorophenol (µg/L) - TW                            | 2018/11/27                  | <MDL 0.15        | 900.00   | No                       | No    |
| 2,4-Dichlorophenoxy acetic acid (2,4-<br>D) (µg/L) - TW   | 2018/11/27                  | <MDL 0.19        | 100.00   | No                       | No    |
| Diclofop-methyl (µg/L) - TW                               | 2018/11/27                  | <MDL 0.4         | 9.00   | No                       | No    |
| Dimethoate (µg/L) - TW                                    | 2018/11/27                  | <MDL 0.03        | 20.00  | No                       | No    |
| Diquat (µg/L) - TW  | 2018/11/27                  | <MDL 1.0         | 70.00  | No                       | No    |
| Diuron (µg/L) - TW  | 2018/11/27                  | <MDL 0.03        | 150.00   | No                       | No    |
| Glyphosate (µg/L) - TW                                    | 2018/11/27                  | <MDL 1.0         | 280.00   | No                       | No    |
| Malathion (µg/L) - TW                                     | 2018/11/27                  | <MDL 0.02        | 190.00   | No                       | No    |
| Metolachlor (µg/L) - TW                                   | 2018/11/27                  | <MDL 0.01        | 50.00  | No                       | No    |
| Metribuzin (µg/L) - TW                                    | 2018/11/27                  | <MDL 0.02        | 80.00  | No                       | No    |
| Monochlorobenzene (Chlorobenzene)<br>(µg/L) - TW          | 2018/11/27                  | <MDL 0.3         | 80.00  | No                       | No    |
| Paraquat (µg/L) - TW                                      | 2018/11/27                  | <MDL 1.0         | 10.00  | No                       | No    |
| PCB (µg/L) - TW   | 2018/11/27                  | <MDL 0.04        | 3.00   | No                       | No    |
| Pentachlorophenol (µg/L) - TW                             | 2018/11/27                  | <MDL 0.15        | 60.00  | No                       | No    |
| Phorate (µg/L) - TW                                       | 2018/11/27                  | <MDL 0.01        | 2.00   | No                       | No    |
| Picloram (µg/L) - TW                                      | 2018/11/27                  | <MDL 1.0         | 190.00   | No                       | No    |
| Prometryne (µg/L) - TW                                    | 2018/11/27                  | <MDL 0.03        | 1.00   | No                       | No    |
| Simazine (µg/L) - TW                                      | 2018/11/27                  | <MDL 0.01        | 10.00  | No                       | No    |
| Terbufos (µg/L) - TW                                      | 2018/11/27                  | <MDL 0.01        | 1.00   | No                       | No    |
| Tetrachloroethylene (µg/L) - TW                           | 2018/11/27                  | <MDL 0.35        | 10.00  | No                       | No    |
| 2,3,4,6-Tetrachlorophenol (µg/L) - TW                     | 2018/11/27                  | <MDL 0.2         | 100.00   | No                       | No    |
| Triallate (µg/L) - TW                                     | 2018/11/27                  | <MDL 0.01        | 230.00   | No                       | No    |
| Trichloroethylene (µg/L) - TW                             | 2018/11/27                  | <MDL 0.44        | 5.00   | No                       | No    |
| 2,4,6-Trichlorophenol (µg/L) - TW                         | 2018/11/27                  | <MDL 0.25        | 5.00   | No                       | No    |
| 2-methyl-4-chlorophenoxyacetic acid<br>(MCPA) (µg/L) - TW | 2018/11/27                  | <MDL 0.12        | 100.00   | No                       | No    |

| Parameter  | Sample Date<br>(yyyy/mm/dd) | Sample<br>Result | Maximum<br>Allowable<br>Concentration<br>(MAC) | Number of<br>Exceedances |       |
|--|-----------------------------|------------------|--|--------------------------|-------|
|  |                             |                  |  | MAC                      | ½ MAC |
| Trifluralin (µg/L) - TW                              | 2018/11/27                  | <MDL 0.02        | 45.00  | No                       | No    |
| Vinyl Chloride (µg/L) - TW                           | 2018/11/27                  | <MDL 0.17        | 1.00   | No                       | No    |
| Trihalomethane: Total Annual Average<br>(µg/L) - DW  | 4 Quarters of<br>2018       | 54.75            | 100.00   | No                       | Yes   |
| Haloacetic Acid: Total Annual Average<br>(µg/L) - DW | 4 Quarters of<br>2018       | 9.75             | 80.00  | N/A*                     | N/A*  |

Note: MDL = Minimum Detection Limit

\*The MAC for Haloacetic Acid does not come into effect until 2020.

**Table 7: List of Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.**

| Parameter                                 | Result<br>Value | Unit of<br>Measure | Date of<br>Sample     |
|---|-----------------|--------------------|-----------------------|
| Sodium: Na - TW                           | 50.9            | mg/L               | 2017/01/18            |
| Trihalomethane: Total Annual Average - DW | 54.75           | µg/L               | 4 Quarters<br>of 2018 |

Note: This table highlights the parameters with a “Yes” in the ½ MAC columns of Table 4 and Table 6.