

Summary Report 2023

Orangeville Drinking Water System

Town of Orangeville

Ministry of the Environment, Conservation & Parks

Municipal Drinking Water License No. 108-101

Drinking Water Works Permit No. 108-201

Water Works No. 220003252

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Date: February 23, 2024

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1. Introduction

This is the summary report for the Orangeville drinking water system, as required by Schedule 22 of Ontario Regulation 170/03 (Reg. 170/03), as amended, Summary Reports for Municipalities. For purposes of the regulation, the Orangeville drinking water system is considered a large municipal residential system.

The reporting period is January 1 to December 31, 2023.

During the reporting period, the Orangeville drinking water system was operated pursuant to the Municipal Drinking Water License (MDWL) and Drinking Water Works Permit (DWWP) listed below.

1. MDWL No. 108-101 (Issue No. 3), dated December 1, 2020 and expiring on November 29, 2025.
2. DWWP No. 108-201 (Issue No. 3), dated December 1, 2020 and superseded by DWWP No. 108-201 (Issue No. 4), dated May 5, 2023.
3. Schedule C to DWWP No. 108-201 (Issue No. 4), dated June 30, 2023.

The DWWP and MDWL were issued in accordance with Sections 40 and 44, respectively, of the Safe Drinking Water Act (SDWA), 2002.

Water takings for the drinking water system were made under Permit to Take Water (PTTW) No. 5327-CMJLJU for the period January 1 to March 13, 2023. Water takings after March 13, 2023 were made under PTTW No. 3858-CPSNU5, issued March 13, 2023 and expiring on December 31, 2032.

The summary report is required to provide the following:

1. A list of any known instances when the system failed to meet the requirements of the Safe Drinking Water Act (SDWA), the regulations, the system's MDWL, DWWP, and any order;
2. Descriptions of the measures that were taken to correct the failure;
3. A summary of the quantities and flow rates of water supplied during the reporting period;
4. The monthly average and maximum daily instantaneous peak flow rates; and
5. A comparison of the data summarized above to the rated capacities and flow rates in the system's MDWL.

2. Failure to Meet Regulatory Requirements

This section provides a summary of regulatory non-compliance issues that occurred during the reporting period.

2.1. Non-compliance with Schedule 1-2 (1) 1 of Ontario Regulation 170/03.

2.1.1. Background

Schedule 1-2 (1) 1 of Reg. 170/03 requires the drinking water system Owner to ensure that its water supply wells are constructed and maintained in a manner to prevent surface water and other foreign materials from entering the wells.

2.1.2. Description

The Ministry of Environment, Conservation and Parks (MECP) Inspector conducted an inspection of the Orangeville drinking water system on September 13, 2023 and observed the annular seal around Well 11 had degraded such that gaps existed between the outside of the well casing and the adjacent concrete pad.

The Inspector acknowledged that the Town had previously repaired the annular seal in January 2023; however, the cement/grout that was used did not appear to set properly, causing the seal to crack and become displaced over time.

2.1.3. Resolution

Orangeville Staff arranged to promptly repair the annual seal at Well 11. A licensed well technician was hired to complete the repairs, and confirmation of the completed work was provided to the Inspector on September 25, 2023.

2.2. Non-Compliance with Schedule B, Section 4.0 of Drinking Water Works Permit No. 108-201.

2.2.1. Background

Schedule B of the DWWP authorizes the drinking water system Owner to complete alterations, modifications, and repairs to the drinking water system and provides a framework for how these activities are to be completed and documented.

Section 4.0 of Schedule B identifies what is considered a minor modification to the drinking water system and states that minor modifications are to be documented using the Province of Ontario's "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System". The Form 2 must be completed before the modifications or replacements are placed into service.

2.2.2. Description

The MECP inspection report dated December 21, 2023 notes the Town completed a Form 2 when a new hydrodynamic mixing system was installed inside the water storage Standpipe on Commerce Road. However, the Form 2 was not completed before the mixing system was placed into service.

2.2.3. Resolution

Water Works Compliance Staff will endeavor to ensure that future Form 2 documents are completed prior to placing any minor modifications into service.

2.3. Non-compliance with Schedule 1-2 (2) of Ontario Regulation 170/03.

2.3.1. Background

Schedule 1-2 (2) of Reg. 170/03 requires the drinking water system Owner to ensure that all treatment equipment is in operation whenever water is being supplied to the distribution system, and the equipment is operated such that it achieves its design capabilities.

2.3.2. Description

The MECP inspection report dated December 21, 2023 notes that improperly disinfected water was discharged to the distribution system for nine (9) minutes during step-testing of Well 11.

In March 2023, specific valves in the Well 11 control building were set so that water pumped from the well was discharged to waste to facilitate biennial step-testing. One motorized valve; shown as closed on the SCADA screen, had actually over-rotated and was partially reopened.

A downstream chlorine analyzer indicated a low residual reading of 0.38 mg/L during pumping operations. Operations Staff quickly noted that this indicated some raw water from the well was passing through the valve and entering the distribution system. The step-test was immediately stopped and the required remedial actions were taken.

2.3.3. Resolution

The event was reported as an Adverse Water Quality Incident (AWQI #161543) as required by Schedule 16 of Reg. 170/03. Corrective actions were taken in accordance with Schedule 17 of Reg. 170/03. All testing results were within the regulatory limits.

The standard operating procedure for step-testing Well 11 was modified so it includes information regarding possible malfunctioning of the motorized valves. Directions are provided to prevent raw water discharge to the distribution system during future step-tests at Well 11.

2.4. Non-compliance with Schedule 10-3 of Ontario Regulation 170/03.

2.4.1. Background

Schedule 10-3 of Reg. 170/03 requires the drinking water system Owner to ensure a treated water sample is taken at least once every week from each point of entry to the distribution system and is tested for microbiological parameters. Schedule 6-1.1 (1) of Reg. 170/03 defines weekly to mean that samples must be collected at least five (5)

days, but not more than ten (10) days, after a sample was collected for the same purpose the previous week.

2.4.2. Description

The MECP inspection report dated December 21, 2023 indicates the weekly treated water microbiological sample for the Well 8 treatment plant was missed during the week of July 2 to 8, 2023. The treatment plant was out of service until early July 2023 for cleaning and upgrade works.

Operations Staff collected treated water samples for microbiological testing on June 26, 2023. The samples were collected to ensure the water treatment facility was properly disinfected prior to reentering service. All testing results were within the regulatory limits.

The Well 8 treatment plant was returned to service on July 5, 2023, but subsequent microbiological samples were not collected until July 11, 2023; 15 days after the previous samples were collected.

2.4.3. Resolution

Standard operating procedure No. 013-04, "Regulatory Water Quality Sampling and Testing" was revised January 31, 2024. The revisions include detailed steps to follow when bringing treatment plants back online following repairs or prolonged shutdowns. A training session on the updated SOP was held with Operations Staff on February 7, 2024.

2.5. Non-compliance with Schedule E of MDWL No. 108-101.

2.5.1. Background

Schedule E of the MDWL requires that UV reference sensor checks be completed monthly whenever UV disinfection is used in the primary disinfection process. Schedule 6-1.1 (3) of Reg. 170/03 defines monthly to mean a period of not less than twenty (20) days, and not more than forty (40) days.

2.5.2. Description

The MECP inspection report dated December 21, 2023 noted that all required UV reference sensor checks were completed. However; upon detailed review, records indicated some of the monthly sensor checks fell outside the 20 to 40-day timeframe.

2.5.3. Resolution

The Town is working toward implementation of an electronic work order system to assist in scheduling maintenance activities, including UV reference sensor checks. The work order system will include automatic reminders to help ensure maintenance work is completed within the required timeframes.

2.6. Non-compliance with Element 17 of the Orangeville Drinking Water Quality Management System Operational Plan.

2.6.1. Background

Element 17 of the Orangeville Drinking Water Quality Management System (DWQMS) Operational Plan describes the calibration and maintenance procedures for measuring equipment used in the drinking water system. Appendix G of the Operational Plan specifies the calibration frequencies for each type of measuring equipment.

2.6.2. Description

A DWQMS internal audit was conducted in December 2023 as required by the Drinking Water Quality Management Standard. The internal audit report dated December 7, 2023, noted the measuring devices were calibrated within the required timeframes, except one (1) carbon monoxide monitor at the Well 9 treatment plant was missed. The internal Auditor issued a minor non-conformance for the missed equipment calibration.

2.6.3. Resolution

Compliance staff completed a Corrective Action Report (CAR), as required by the Drinking Water Quality Management Standard. The CAR process determined the root cause of the missed calibration was the shuffling of roles and responsibilities of key Operations Staff and the lack of an automated work order system.

The Town is working toward implementation of an electronic work order system to assist in scheduling maintenance activities, including monitoring equipment calibrations. The work order system will include automatic reminders to help ensure maintenance work is completed within the required timeframes and items are not missed.

3. Summaries of Flow Rates and Water Supply Capacities

Table 1 summarizes the capacities of the system's water treatment facilities and the flow rates through the facilities during the reporting period. The table includes the following information.

1. The monthly average and maximum daily flow through each of the water treatment facilities, in cubic metres per month and cubic metres per day, respectively.
2. The daily instantaneous peak flow rate through each of the water treatment facilities, in litres per minute. The table includes a footnote explaining how the rates were calculated.
3. The approved rated capacity of each treatment facility, in cubic metres per day, as authorized in the MDWL. None of the facilities exceeded their approved rated capacities in 2023.

4. The maximum daily flow through each treatment facility expressed as a percentage of the approved rated capacity for that facility, as authorized in the MDWL.
5. Footnotes that deal specifically with the Well 2A treatment facility.

TABLE 1

**Town of Orangeville Drinking Water System
Water Treatment Facilities
2023 Capacity & Flow Summary**

Well Field	Volumes Through Treatment Facilities				Approved Rated Capacity in MDWL (m3/day)
	Monthly Average (m3/mo.)	Daily Instantaneous Peak Flow Rate (L/min.) (1)	Maximum Daily Flow (m3/day)	Max. Daily Flow as % of Approved Rated Capacity in MDWL	
2A	19,513 (2)	544	784	60% (3)	1,309 (3)
5/5A	101,759	3,607	5,194	87%	6,000
6	36,702	1,117	1,609	45%	3,600
7	25,176	684	985	75%	1,310
8B/8C	1,274	368	530	81%	654
9A/9B	12,570	526	758	86%	878
10	13,503	815	1,173	81%	1,453
11	23,006	642	924	71%	1,309
12	21,759	769	1,108	85%	1,309
All Wells:	248,172	-	11,230	63%	17,822

Footnotes:

- (1) Daily instantaneous peak flow rates are calculated by converting the maximum daily flow in m3/day to L/min. This calculation assumes the flow through the treatment facility has been continuous during the preceding 24-hour period.
- (2) The Well 2A monthly average is based on a 6 month operating period. Refer to PTTW No. 3858-CPSNU5.
- (3) The Well 2A maximum daily volume allowed in PTTW No. 3858-CPSNU5 is only 878.4 m3/day. The maximum daily flow of 784 m3/day is **89%** of the PTTW rate.

4. Conclusion

This report will be presented to Orangeville Council at its March 18, 2024 meeting, satisfying the requirements of Schedule 22-2 (1) (a) of Reg. 170/03, as amended. Additionally, the report will be available to the public at no cost, and it will be posted on the Town’s website at www.orangeville.ca.