



Township of Oro-Medonte Drinking Water Compliance Report 2020

Medonte Hills Drinking Water System

Annual and Municipal Summary Reports

(Prepared in accordance with Section 11 and Schedule 22 of Ontario Regulation 170/03)

Period Covering: January 1 to December 31, 2020

February 12, 2021

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1 Introduction

The Township of Oro-Medonte has prepared this report to satisfy the requirements of Section 11: Annual Report and Schedule 22: Summary Reports for Municipalities of Ontario Regulation (O.Reg.) 170/03.

This report covers the period of January 1 to December 31, 2020, and applies to the following municipally-owned and operated drinking water system:

- Medonte Hills Drinking Water System (DWS #220003920)

2 Reporting Requirements

2.1 Requirements under Section 11: Annual Report

Section 11 of O. Reg 170/03 requires that the Owner of a drinking water system shall ensure that an annual report, covering the period from January 1 to December 31 in a year, be prepared no later than February 28 of the following year. The report must include the following information relating to the period covered by the report:

- Include a statement of where a report prepared under Schedule 22 will be available for inspection by any member of the public during normal business hours without charge;
- Contain a brief description of the drinking water system, including a list of water treatment chemicals used by the system;
- Describe any major expenses incurred to install, repair or replace required equipment;
- Summarize any reports made to the Ministry of Environment, Conservation and Parks (MECP) for Adverse Water Quality Incidents (AWQIs);
- Summarize the results of tests required under O.Reg. 170/03, or under an approval, municipal drinking water licence or order, including an Ontario Water Resources Act order, if tests required under this Regulation in respect of a parameter were not required during that period, summarize the most recent results of tests of that parameter; and,
- Describe any corrective actions taken.

2.2 Requirements under Schedule 22: Summary Report for Municipalities

Schedule 22 of O. Reg 17/03 requires that the report be prepared no later than March 31 of the following year, and include the following information relating to the period covered by the report:

- List the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence, and any orders applicable to the system that were not met at any time during the period covered by the report with specifics to the duration and measures that were taken to correct the failure.
- The report must also include the following information to enable the Owner of the system to assess the capability of the system to meet existing and planned uses of the system:
 - Summarize the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows; and,
 - Compare the aforementioned summary of quantities and flow rates to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence.

3 Compliance Reporting Requirement

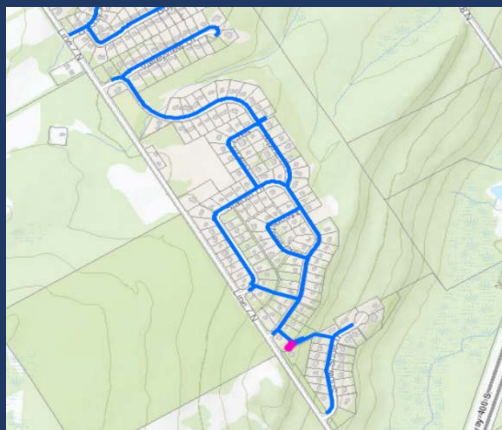
3.1 Availability of the Drinking Water Compliance Report

In accordance with Section 11 of O.Reg. 170/03, a copy of the report is available to the public, free of charge from the following outlets:

- Township of Oro-Medonte's website (www.oro-medonte.ca); and,
- Public request at the Municipal Office, located at 148 Line 7 South, Oro-Medonte.

The public is advised of the report's availability and how to obtain a copy, without charge, on the Township of Oro-Medonte's website and social media by February 28th, 2021.

4 Medonte Hills Drinking Water System



MEDONTE HILLS

Drinking Water System Number: 220003920

Raw Water Source: Groundwater

**Drinking Water System Category:
Large Municipal Residential**

**Drinking Water System Classification:
Water Supply & Distribution Class 2**

Population Served: Approx. 550 persons

4.1 Municipal Drinking Water System Description

The Medonte Hills Drinking Water System (DWS # 2200003920) is located at 5341 Line 7 North, Concession 8, Oro-Medonte. The facility is owned and operated by the Corporation of the Township of Oro-Medonte in accordance with its specific MDWL, DWWP, and PTTW and all other applicable legislation.

This groundwater facility consists of two production wells, process piping, and an above-ground reservoir. Raw water is conveyed to the pumphouse, where treatment includes chlorination with sodium hypochlorite. Primary disinfection is achieved through the CT disinfection concept using the combination of a disinfectant residual concentration and effective contact time by means of a steel-bolted, glass fused 281m³ standpipe and chlorine contact main. Two (2) high lift pumps supply treated water into the two separate pressure zones (Top and Lower Zones) based on system demand in the distribution system.

The distribution system consists of approximately 3 km of watermain (ranging from 60mm to 150mm diameter), seventeen (17) valves, three (3) hydrants, and two (2) sample stations servicing approximately 156 residential homes.

Monitoring of the drinking water system's operation is 24 hours a day, seven days a week continuously through a computerized SCADA system, equipped with alarming for a certified water operator dispatch when operational issues arise. Emergency backup power is fulfilled through a 25 kW natural gas generator.

4.2 Water Treatment Chemicals

The following water treatment chemicals were utilized during the reporting period:

- Sodium Hypochlorite (12%)

4.3 Major Expenses Incurred within the Drinking Water System

The Township of Oro-Medonte has determined expenses over \$25,000 be considered a 'major expense'. A brief summary of the major or notable expenses incurred or during the reporting period to install, repair or replace required equipment, and value of each, is included in the table below.

Table 1: Major or Notable Expense Summary

Expense	Cost Incurred
Alpine Drive Watermain Repair	~ \$5,000

4.4 Ontario Regulation (O.Reg) 170/03: Operational Checks, Sampling and Testing

O.Reg. 170/03 outlines specific operational checks and sampling requirements for drinking water systems, while O.Reg. 169/03 specifies drinking water quality standards and maximum allowable concentrations of analytical parameters.

During the reporting period, the required operational checks were completed and drinking water samples collected in accordance with O.Reg. 170/03. All accredited laboratory results for analyzed samples met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03.

No additional testing and sampling was required in 2020 due to any requirements of an approval, order or other legal instrument.

4.4.1 Schedule 7 Operational Checks (O.Reg 170/03)

Operational checks of measurements of free chlorine residuals and raw water turbidity were conducted in accordance with the large residential drinking water system requirements as prescribed by O.Reg.170/03, Schedule 7. No data is reported for fluoride as the Township of Oro-Medonte does not fluoridate any of its drinking water systems.

Table 2: Schedule 7 Operational Checks Summary

Parameter	Sample Count	Range of Results (min-max)
Raw Turbidity (NTU) – Well 1	12	0.05 – 0.38
Raw Turbidity (NTU) – Well 3	12	0.10 – 0.60
Chlorine (mg/L)	8760*	0.00 – 2.84**
Fluoride	n/a	n/a

* 8760 is the number of samples used for continuous monitoring.

** The range of chlorine results incorporate maintenance activities and operational testing. It does not necessarily reflect residuals within the distribution system.

4.4.2 Schedule 11: Microbiological Sampling and Testing (O.Reg 170/03)

Raw, treated and distribution water samples were collected and analyzed for microbiological parameters specified in Section 11-2, 11-3 and 11-4 of O.Reg. 170/03. All accredited laboratory results for samples analyzed for microbiological parameters met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03, unless otherwise stated in Section 4.5.1 ‘Schedule 16: Reporting of Adverse Test Results and Other Problems’ of this report.

Raw, treated and distribution drinking water samples were analyzed for bacteriological health-related parameters including: E.coli, total coliform, background bacteria (background) and heterotrophic plate count (HPC). The presence of HPC and background bacteria act as indicator that when measured in counts greater than 200 CFU per 100 mL, it may be indicative of a deterioration in water quality within the drinking water system and initiate additional maintenance activities, such as flushing. The results for microbiological and bacteriological parameters during this reporting period are summarized below for reference.

Table 3: Schedule 11 Microbiological Sampling and Testing Summary

Source		Sample Count	E.coli (CFU/100 mL)	Total Coliform (CFU/100 mL)	Background (CFU/100 mL)	HPC (CFU/1 mL)
			(min-max)	(min-max)	(min-max)	(min-max)
Raw	Well 1	52	0	0	0	-
	Well 3	52	0	0	0-1	-
Treated	-	52	0	0	0	0 - 160
Distribution	-	104	0	0	0 - 1	0 - 20

Note: Total coliform results in raw drinking water samples are prior to treatment.

4.4.3 Schedule 13: Chemical Testing (O.Reg 170/03)

Drinking water samples were collected from the drinking water system and analyzed for all parameters in accordance with O.Reg. 170/03, Schedule 13. All samples analyzed met the requirements and did not exceed the applicable standards stipulated in O.Reg. 169/03.

If chemical analysis under O.Reg. 170/03 was not required during this reporting period; the most recent analytical results for that parameter have been summarized in the tables below for reference, in accordance with O.Reg. 170/03, Section 11.

Under Section 13-2 and 13-4, sampling requirements for inorganics and organics are once every 36 months and tested for every parameter listed in O.Reg 170/03, Schedules 23 and 24. Results indicated that all parameters were below half the maximum allowable concentration in Schedule 2 in the Ontario Drinking Water Quality Standards. The most recent chemical parameters results are summarized in the table below for reference.

Table 4: Schedule 23 Inorganic and Schedule 24 Organic Results Summary

Parameter	Date Sampled	Results	Units	Exceedance
Schedule 23: Inorganics				
Antimony	2018/07/23	0.05	ug/L	No
Arsenic	2018/07/23	0.2<MDL	ug/L	No
Barium	2018/07/23	68.2	ug/L	No
Boron	2018/07/23	7	ug/L	No
Cadmium	2018/07/23	0.007	ug/L	No
Chromium	2018/07/23	2.12	ug/L	No
Mercury	2018/07/23	0.01<MDL	ug/L	No
Selenium	2018/07/23	0.18	ug/L	No
Uranium	2018/07/23	0.531	ug/L	No
Schedule 24: Organics				
Alachlor	2018/05/28	0.02<MDL	ug/L	No
Atrazine + N-dealkylated metabolites	2018/05/28	0.01<MDL	ug/L	No
Azinphos-methyl	2018/05/28	0.05<MDL	ug/L	No
Benzene	2018/05/28	0.32<MDL	ug/L	No
Benzo(a)pyrene	2018/05/28	0.004<MDL	ug/L	No
Bromoxynil	2018/05/28	0.33<MDL	ug/L	No
Carbaryl	2018/05/28	0.05<MDL	ug/L	No
Carbofuran	2018/05/28	0.01<MDL	ug/L	No
Carbon Tetrachloride	2018/05/28	0.16<MDL	ug/L	No
Chlorpyrifos	2018/05/28	0.02<MDL	ug/L	No
Diazinon	2018/05/28	0.02<MDL	ug/L	No
Dicamba	2018/05/28	0.20<MDL	ug/L	No

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1,2-Dichlorobenzene	2018/05/28	0.41<MDL	ug/L	No
1,4-Dichlorobenzene	2018/05/28	0.36<MDL	ug/L	No
1,2-Dichloroethane	2018/05/28	0.35<MDL	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	2018/05/28	0.33<MDL	ug/L	No
Dichloromethane	2018/05/28	0.35<MDL	ug/L	No
2,4-Dichlorophenol	2018/05/28	0.15<MDL	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2018/05/28	0.19<MDL	ug/L	No
Diclofop-methyl	2018/05/28	0.40<MDL	ug/L	No
Dimethoate	2018/05/28	0.03<MDL	ug/L	No
Diquat	2018/05/28	1<MDL	ug/L	No
Diuron	2018/05/28	0.03<MDL	ug/L	No
Glyphosate	2018/05/28	1<MDL	ug/L	No
Malathion	2018/05/28	0.02<MDL	ug/L	No
Metolachlor	2018/05/28	0.01<MDL	ug/L	No
Metribuzin	2018/05/28	0.02<MDL	ug/L	No
Monochlorobenzene	2018/05/28	0.3<MDL	ug/L	No
MCPA	2018/05/28	0.00012<MDL	mg/L	No
Paraquat	2018/05/28	1<MDL	ug/L	No
Pentachlorophenol	2018/05/28	0.15<MDL	ug/L	No
Phorate	2018/05/28	0.01<MDL	ug/L	No
Picloram	2018/05/28	1<MDL	ug/L	No
Polychlorinated Biphenyls (PCB)	2018/05/28	0.04<MDL	ug/L	No
Prometryne	2018/05/28	0.03<MDL	ug/L	No
Simazine	2018/05/28	0.01<MDL	ug/L	No
Terbufos	2018/05/28	0.01<MDL	ug/L	No
Tetrachloroethylene	2018/05/28	0.35<MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	2018/05/28	0.20<MDL	ug/L	No
Triallate	2018/05/28	0.01<MDL	ug/L	No
Trichloroethylene	2018/05/28	0.44<MDL	ug/L	No
2,4,6-Trichlorophenol	2018/05/28	0.25<MDL	ug/L	No
Trifluralin	2018/05/28	0.02<MDL	ug/L	No
Vinyl Chloride	2018/05/28	0.17<MDL	ug/L	No

*Note: '<MDL' indicates analysis did not meet the minimum reportable concentration for the parameter.

Under Section 13-6 and 13-6.1, sampling requirements for trihalomethanes (THMs) and haloacetic acids (HAAs) are quarterly and expressed as a running annual average (RAA), which is updated continually as quarterly sample results are received.

Regulatory reporting requirements for HAAs and its associated calculated RAA of quarterly results commenced January 1, 2020, although Environmental Services has been actively calculating RAA since 2017 as a best management practice to evaluate the status of the parameter within the drinking water system.

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Summarized in the table below are the 2020 THMs and HAAs results for reference.

Table 5: Trihalomethanes and Haloacetic Acids Results Summary

Parameter	Running Annual Average (RAA)	Unit	Exceedance
Trihalomethanes (THMs)	2.65	ug/L	No
Haloacetic Acid (HAAs)	5.3<MDL	ug/L	No

*Note: '<MDL' indicates analysis did not meet the minimum reportable concentration for the parameter.

Under Section 13-7, sampling requirements for nitrate and nitrite are quarterly. Summarized in the table below are the 2020 nitrate and nitrite results for reference.

Table 6: Nitrate and Nitrite Results Summary

Parameter	Date Sampled	Results	Unit	Exceedance
Nitrate	2020/03/04	0.678	mg/L	No
	2020/05/12	0.655	mg/L	No
	2020/08/25	0.691	mg/L	No
	2020/12/10	0.675	mg/L	No
Nitrite	2020/03/04	0.003<MDL	mg/L	No
	2020/05/12	0.003<MDL	mg/L	No
	2020/08/25	0.003<MDL	mg/L	No
	2020/12/10	0.003<MDL	mg/L	No

*Note: '<MDL' indicates analysis did not meet the minimum reportable concentration for the parameter.

Under Section 13-8 and 13-9, sampling requirements for sodium and fluoride are once every 60 months. Summarized in the table below are the 2020 sodium and fluoride results for reference.

Table 7: Sodium and Fluoride Results Summary

Parameter	Date Sampled	Results	Unit	Exceedance
Sodium	2018/10/15	5.95	mg/L	No
Fluoride	2018/10/15	0.07	mg/L	No

4.4.4 Schedule 15.1: Lead Testing (O.Reg 170/03)

Lead samples were collected from the drinking water system during the prescribed sampling periods of 'Winter' (December 15 to April 15) and 'Summer' (June 15 to October 15) in accordance with Schedule 15.1. The Medonte Hills Drinking Water System has met the eligibility criteria for a reduction in sampling requirements as prescribed in Section 15.1-5. The distribution system sampling is required as follows:

- Alkalinity and pH each year, every "Winter" and "Summer" period

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- Lead once every 3 years, “Winter” and “Summer” period

Summarized in the table below are the 2020 total alkalinity and pH results for reference. Lead was last required to be sampled in 2018 and results can be referenced in the annual report for that year.

Table 8: Alkalinity, pH and Lead Sampling Results Summary

Since Location Type	Sample Count	Date Sampled	Alkalinity Results (mg/L)	pH Results	Exceedance
Plumbing	n/a	n/a	n/a	n/a	n/a
Distribution	2	2020/04/08	224 - 225	7.34 - 7.44	No
	2	2020/10/16	241-244	7.5 - 7.7	No

*Note: Lead results can be found in the 2018 Annual Report.

4.5 Reporting and Corrective Actions

4.5.1 Schedule 16: Reporting of Adverse Test Results and Other Problems

In accordance with O. Reg 170/03, Schedule 16, notifications of adverse water quality incidents and other observations that indicate the potential of improperly disinfected water has been directed to users are provided to the MECP Spills Action Centre and local Medical Officer of Health (Simcoe Muskoka District Health Unit). During this reporting period, were no such incidents or occurrences in the drinking water system.

4.5.2 Schedule 17: Corrective Actions

Due to the non-occurrence of any adverse test or other observations requiring reporting to the MECP, there were no corrective actions required.

Table 9 Adverse Water Quality Incidents (AWQIs) & Corrective Actions Summary

AWQI #	Incident	Corrective Action
N/A	N/A	N/A

4.6 Municipal Summary Report

4.6.1 Schedule 22, Section 1

The following table summarizes the requirements of the Act, the Regulations, the system’s approval, municipal drinking water license drinking water works permit, and any orders applicable to the system that were not met during the reporting period, including the duration and description of the corrective action(s) taken.

Table 10: Regulatory Compliance Summary

Safe Drinking Water Act (SDWA) & Associated Regulations
<p>The Medonte Hills Drinking Water System was inspected for the 2020 year, however, the final inspection report and results had not yet been received by the time of this report’s completion.</p> <p>As of January 2021, six (6) of the eleven (11) Township of Oro-Medonte drinking water systems had received 2020 MECP Drinking Water System Inspection Reports and were initially awarded an inspection rating of 100% by the MECP, however, were later retracted and re-issued in early February 2021 by MECP due to an encountered error in the original reports. The error resulted in a revised final inspection rating of 98.6% from the original 100% to reflect a sampling issue that took place during the 2018 “winter” sampling period (December 2017 to March 2018). The error was found through a follow-up MECP re-assessment of sampling and testing of lead that was not previously conducted during 2018 and 2019 MECP inspection audits.</p> <p>Although not yet received, the 2020 MECP Drinking Water System Inspection Report will most likely result in a similar rating as this drinking water system was affected by the same MECP and sampling error from 2018.</p>
Municipal Drinking Water Licence & Drinking Water Work Permit
<p>No issues or non-compliances identified during this reporting period.</p>
Provincial Orders
<p>No provincial orders issued during this reporting period.</p>
Best Practice Issues and Recommendations
<p>No recommendations or best practices issued by MECP during this reporting period.</p>

4.6.2 Schedule 22, Section 2

In order to assist the Township in assessing the capability of the system to meet existing and planned uses of the system, Table 11 and Graph 1 in Appendix A summarizes the quantities of water volumes supplied and offers a visual depiction of allowed water taking compared to drinking water system demands during the reporting period, including monthly average and maximum daily flows.

5 Conclusion

It is the belief of the Township of Oro-Medonte that this report satisfies the requirements of Section 11 and Schedule 22 of O.Reg. 170/03.

Any questions regarding this report should be directed to Environmental Services.

APPENDIX A: TABLES & GRAPHS

Table 11: Well Flow Summary

	Well 1				Well 3			
	Approved Capacity: 327 m ³ /day				Approved Capacity: 393 m ³ /day			
	Total Flow (m ³)	Average Day (m ³)	Maximum Day (m ³)	Max. Day/ Capacity (%)	Total Flow (m ³)	Average Day (m ³)	Maximum Day (m ³)	Max. Day/ Capacity (%)
January	945.06	30.49	42.38	13	994.31	32.07	51.82	13
February	913.14	31.49	42.24	13	903.06	31.14	36.35	9
March	1030.65	33.25	53.44	16	1043.24	33.65	58.28	15
April	1063.15	35.44	58.86	18	1111.87	37.06	64.00	16
May	1320.78	42.61	82.83	25	1365.51	44.05	93.56	24
June	1603.52	53.45	93.08	28	1419.75	47.33	78.92	20
July	1421.87	45.87	120.68**	37	1571.15	50.68	112.65**	29
August	1156.75	37.31	55.39	17	1192.99	38.48	67.86	17
September	949.42	31.65	57.61	18	1166.98	38.90	76.68	20
October	945.49	31.52	54.81	17	1247.75	41.59	68.89	18
November	811.02	28.96	48.85	15	1042.62	35.95	69.38	18
December	939.13	30.29	47.26	14	1103.71	35.60	54.56	14

*Data was not available for October 31 and November 1 and was not included in reported flow volumes.

** Denotes month of maximum day flow for 2020.

Graph 1: Average and Maximum Daily Usage Compared to Permitted Daily Capacity

