

SUMMARY REPORT

ONTARIO REGULATION 170/03
SECTION 22

THORNTON DRINKING WATER SYSTEM



**FOR THE PERIOD:
JANUARY 1, 2020 – DECEMBER 31, 2020**

*Prepared for the Corporation of the Township of Essa
by the Ontario Clean Water Agency*



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

SCHEDULE 22
SUMMARY REPORTS FOR MUNICIPALITIES

Municipal: Large Residential
Small Residential

Application

22-1. This Schedule applies to the following drinking water systems:

1. Large municipal residential systems.
2. Small municipal residential systems.

Report

22-2. (1) The owner of a drinking water system shall ensure that, not later than March 31 of each year after 2003, a report is prepared in accordance with subsections (2) and (3) for the preceding calendar year and is given to,

- (a) in the case of a drinking water system owned by a municipality, the members of the municipal council;
- (b) in the case of a drinking water system owned by a municipal service board established under section 195 of the *Municipal Act, 2001*, the members of the municipal service board; or
- (c) in the case of a drinking water system owned by a corporation, the board of directors of the corporation.

(2) The report must,

- (a) 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; and
- (b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

(3) The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence, or if the system is receiving all of its water from another system under an agreement pursuant to subsection 5 (4), to the flow rates specified in the written agreement.

(4) If a report is prepared under subsection (1) for a system that supplies water to a municipality under the terms of a contract, the owner of the system shall give a copy of the report to the municipality by March 31.

(5) Revoked: O. Reg. 253/05, s. 18.

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DRINKING-WATER SYSTEM NAME:	THORNTON DRINKING WATER SYSTEM
DRINKING-WATER SYSTEM NUMBER:	220006945
DRINKING-WATER SYSTEM CATEGORY:	LARGE MUNICIPAL RESIDENTIAL
MUNICIPAL DRINKING WATER LICENCE#:	118-201, issued December 28, 2020
DRINKING-WATER WORKS PERMIT #:	118-101, issued December 28, 2020
PERMIT TO TAKE WATER #:	0113-A4LMPV

REPORT

This report is a summary of water quantity information for the Thornton (Glen Avenue) Drinking Water System (DWS) in the Township of Essa written in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation for the reporting period of January 1, 2020 to December 31, 2020. This report was prepared by the Ontario Clean Water Agency on behalf of the Corporation of the Township of Essa.

ISSUES OF NON-COMPLIANCE

The following outlines any instances when the DWS failed to meet the requirements of the Act, Regulations, System Approval(s) and any Order during this reporting period and the measures taken to correct each failure.

Not Applicable for Reporting Period

Please refer to the Section 11 Annual Report for the Thornton DWS for information regarding Adverse Water Quality Incident(s) that may have occurred during the reporting period.

SYSTEM PERFORMANCE

The following tables (Tables 1 and 2) summarize the quantities and flow rates of the raw water taken and treated water supplied during the period covered by this report, including monthly average and maximum day flows, and daily instantaneous peak flow rates, as well as a comparison with the maximum daily volume and flow rates specified in the system approval:

Table 1: Thornton DWS – Raw Water (RW) Summary for Reporting Period

Description	Well 1	Well 2	Well 3	Well 4
Maximum Allowable Daily Volume (m ³ /day)*	522.72	522.72	492.48	328.32
Maximum Allowable Flow Rate (L/s)**	6.05	6.05	5.70	3.80
Average Daily Flow (m ³ /day)	213.22	182.03	62.65	86.32
Percentage of Maximum Daily Volume*	40.79%	34.82%	12.72%	26.29%
Maximum Daily Flow (m ³ /day)	509.75	501.00	253.00	250.56
Percentage of Maximum Daily Volume*	97.50%	95.84%	51.42%	76.32%
Average Flow Rate (L/s)	5.89	5.32	2.39	2.30
Percentage of Maximum Allowable Flow Rate**	97.36%	87.93%	41.92%	60.53%
Maximum Instantaneous Peak Flow Rate (L/s)	6.60	6.70	6.20	5.50
Percentage of Maximum Allowable Flow Rate**	109.09% ⁺	110.74% ⁺	108.77% ⁺	144.74% ⁺
Total Annual Volume (m ³)	67165.40	49148.07	17605.78	21666.97

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**As specified in the Permit to Take Water, where the “maximum daily volume” is the “Maximum Taken per Day” per well expressed as litres per day and stipulates a “Total Taking” of 1,866.24 m³/day.*

***As specified in the Permit to Take Water, where the “maximum flow rate” is the “Maximum Taken per Minute” per well expressed as litres per minute.*

+Exceedances are due to well pump start-ups and their instantaneous flow rate measurements.

Table 2: Thornton DWS – Total Raw Water (RW) and Treated Water (TW) Summary for Reporting Period

Description	Total RW	Total TW
Maximum Allowable Daily System Volume (m ³ /day)*	1,866.24	-
Rated Capacity (m ³ /day)**	-	1,540.0
Average Daily Flow (m ³ /day)	388.08	421.38
Percentage of Maximum Daily System Volume* or Rated Capacity**	20.79%	27.36%
Maximum Daily Flow (m ³ /day)	1022.00	1128.00
Percentage of Maximum Daily System Volume* or Rated Capacity**	54.76%	73.25%
Total Annual Volume (m ³)	120691.50	154225.50

**As specified in the Permit to Take Water, where it stipulates a “Total Taking” of 1,866.24 m³/day.*

***As specified in the Municipal Drinking Water Licence, where the “rated capacity” is the “the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system,” expressed in cubic metres per day.*

A review of flow information for the period of January 1, 2020 to December 31, 2020 indicates that the maximum daily volume specified in the PTTW was not exceeded on any well. Also, the drinking water system did not exceed the MDWL Rated Capacity for treated water that flows from the treatment subsystem to the distribution system. The instances of exceeding the allowable PTTW maximum flow rate are explained by instantaneous flow rate measurements and well pump start-ups. Instantaneous flow rate exceedances do not result in non-compliances because the PTTW dictates daily and total water taking volumes only.

The following tables (Tables 3 to 6) outline a more detailed flow summary for each Well.

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Table 3: Thornton DWS - Facility Flow Summary for Raw Water Source Well 1

Month	Monthly Flow Total (m ³ /month)	Daily Flow Average (m ³ /day)	Daily Flow Maximum (m ³ /day)	Daily Average Flow Rate (L/sec)	Daily Peak Flow Rate (L/sec)	Number of Days of Water Taking
Jan	6688.36	215.75	261.41	5.78	6.10	30
Feb	5297.65	220.74	284.42	5.78	6.60	28
Mar	3840.82	213.38	299.25	11.66	6.10	31
Apr	4181.48	220.08	362.05	3.67	6.10	22
May	3709.49	264.96	509.00	4.75	6.10	21
Jun	12317.00	410.57	509.00	5.73	6.10	17
Jul	9021.23	346.97	509.00	4.84	6.10	9
Aug	9502.75	306.54	509.75	4.79	6.10	31
Sep	3296.00	109.87	320.00	5.74	6.10	30
Oct	2998.27	93.49	320.00	5.85	6.50	31
Nov	2554.41	85.15	193.00	5.41	6.60	30
Dec	3857.94	124.45	203.19	5.74	6.40	31
Total	67165.40	-	-	-	-	315
Avg.	-	213.22	-	5.89	-	-
Max.	-	-	509.75	-	6.60	-

Table 4: Thornton DWS - Facility Flow Summary for Raw Water Source Well 2

Month	Monthly Flow Total (m ³ /month)	Daily Flow Average (m ³ /day)	Daily Flow Maximum (m ³ /day)	Daily Average Flow Rate (L/sec)	Daily Peak Flow Rate (L/sec)	Number of Days of Water Taking
Jan	1.92	0.48	1.02	0.00	6.10	4
Feb	1172.45	117.25	249.72	6.46	6.70	10
Mar	3189.57	177.20	249.83	5.80	6.60	18
Apr	3303.66	173.88	284.95	3.50	6.30	19
May	5715.38	259.79	412.00	5.75	6.60	22
Jun	4114.00	293.86	501.00	5.65	6.10	14
Jul	11393.00	379.77	501.00	5.50	6.60	30
Aug	6653.00	214.61	501.00	4.21	5.90	31
Sep	4764.35	158.81	354.92	5.47	6.60	30
Oct	3826.99	123.45	246.00	6.42	6.40	31
Nov	2978.94	99.60	238.00	5.65	6.60	30
Dec	2025.81	65.35	226.00	5.63	6.60	31
Total	49148.07	-	-	-	-	270
Avg.	-	182.03	-	5.32	-	-
Max.	-	-	501.00	-	6.70	-

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Table 5: Thornton DWS - Facility Flow Summary for Raw Water Source Well 3

Month	Monthly Flow Total (m ³ /month)	Daily Flow Average (m ³ /day)	Daily Flow Maximum (m ³ /day)	Daily Average Flow Rate (L/sec)	Daily Peak Flow Rate (L/sec)	Number of Days of Water Taking
Jan	2106.74	67.96	82.55	1.86	3.30	31
Feb	1472.78	61.37	80.24	1.65	5.20	24
Mar	945.64	52.54	71.47	1.47	3.10	18
Apr	855.93	53.50	89.74	0.77	2.90	16
May	1138.74	54.23	95.00	1.26	1.80	21
Jun	889.05	55.57	76.00	0.78	2.00	16
Jul	58.86	29.43	30.68	0.00	4.90	2
Aug	62.83	2.03	33.27	0.00	5.80	31
Sep	2731.00	91.03	253.00	4.70	6.10	30
Oct	2343.67	75.60	253.00	4.62	5.90	31
Nov	1963.23	65.44	151.00	4.67	6.20	30
Dec	3037.31	97.98	160.20	4.68	6.00	31
Total	17605.78	-	-	-	-	281
Avg.	-	62.65	-	2.39	-	-
Max.	-	-	253.00	-	6.20	-

Table 6: Thornton DWS - Facility Flow Summary for Raw Water Source Well 4

Month	Monthly Flow Total (m ³ /month)	Daily Flow Average (m ³ /day)	Daily Flow Maximum (m ³ /day)	Daily Average Flow Rate (L/sec)	Daily Peak Flow Rate (L/sec)	Number of Days of Water Taking
Jan	0.00	0.00	0.00	0.00	0.00	0
Feb	450.37	64.34	98.49	2.30	3.00	7
Mar	1344.48	74.69	106.23	1.96	3.90	18
Apr	1471.79	86.58	141.63	1.37	4.30	17
May	1098.47	78.46	127.00	2.49	5.00	14
Jun	2061.73	128.86	250.00	3.14	4.50	16
Jul	5443.00	209.35	250.00	2.93	3.50	26
Aug	3295.87	106.32	250.56	1.62	3.50	31
Sep	2360.11	78.67	175.55	2.96	4.30	30
Oct	1747.00	56.35	120.00	2.85	4.50	31
Nov	1480.10	49.34	117.00	2.84	3.90	30
Dec	914.05	29.49	112.00	2.82	4.20	31
Total	21666.97	-	-	-	-	251
Avg.	-	86.32	-	2.30	-	-
Max.	-	-	250.56	-	5.00	-