

The Corporation of the Town of Mattawa

P.O. Box 390, 160 Water St.,
Mattawa, Ontario, P0H 1V0

2016 Summary Report for Municipalities— Mattawa Drinking Water System per O. Reg 170 / 03 Schedule 22

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February 21, 2017

PLANT: **Mattawa Drinking Water System**

DWS NUMBER: 2100001905

PLANT TYPE: Municipal Drilled Wells

OWNER: The Corporation of the Town of Mattawa

OPERATORS: The Corporation of the Town of Mattawa (Certified Municipal Staff)

ADDRESS: Corporation of the Town of Mattawa
P.O. Box 390
160 Water Street
Mattawa, Ont., P0H 1V0

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DESCRIPTION:

- Water Source is from two deep drilled wells. Well #1 – 26.67m & Well #2 – 23.77m.
- Storage by in-ground concrete reservoir w/ 690 Cubic Meter capacity.
- Distribution system is gravity fed from the reservoir when the pumps are idle, and concurrently fed from the pumps and the reservoir when the well pumps are producing water
- Average water pressure throughout distribution system is between 97 and 102 psi.
- Distribution system comprises of a mixture of PVC, ductile iron and cast iron.
- Pump # 1 is rated at 53.0 L/s and pump #2 is rated at 22.7 L/s.
- The only treatment required for this system is disinfection. Disinfection is presently achieved by U.V. exposure via Trojan Swift Reactors. Chlorination is being used to maintain residuals throughout the distribution system to meet our Drinking Water Works Permit, Municipal Drinking Water Licence and O.Reg 170/03 as amended.

REPORTS TO THE MINISTRY

Per Section 18 of the Safe Drinking Water Act:

- There were no reports submitted to the Ministry under Section 18 of the Act for this period.

COMPLIANCE WITH TERMS & CONDITIONS OF THE DRINKING WATER WORKS PERMIT:

- As far as we have been able to ascertain, with the exception of the items listed in the next section, in 2016 we operated the Town of Mattawa Waterworks in accordance with our Municipal Drinking Water Licence #195-101 (Issue 2), our Drinking Water Works Permit #195-201(Issue 2), and O.Reg 170/03 as amended.
- Chlorine readings in the distribution system are being taken using handheld chlorine meters.
- Chlorine at the plant is being monitored at the plant using an in-line analyzer.
- Water flows are measured in cubic meters. Our SCADA system records the meter readings and provides for an ongoing report of the water produced during each daily period. As such, daily flows are easily found on the SCADA system.
- A detailed Operations Manual and Contingency Plan has been completed and implemented.
- As far as we can ascertain we have not exceeded the maximum flow rate of 6,540 m³/day.

NON - COMPLIANCE WITH TERMS & CONDITIONS OF THE DRINKING WATER WORKS PERMIT:

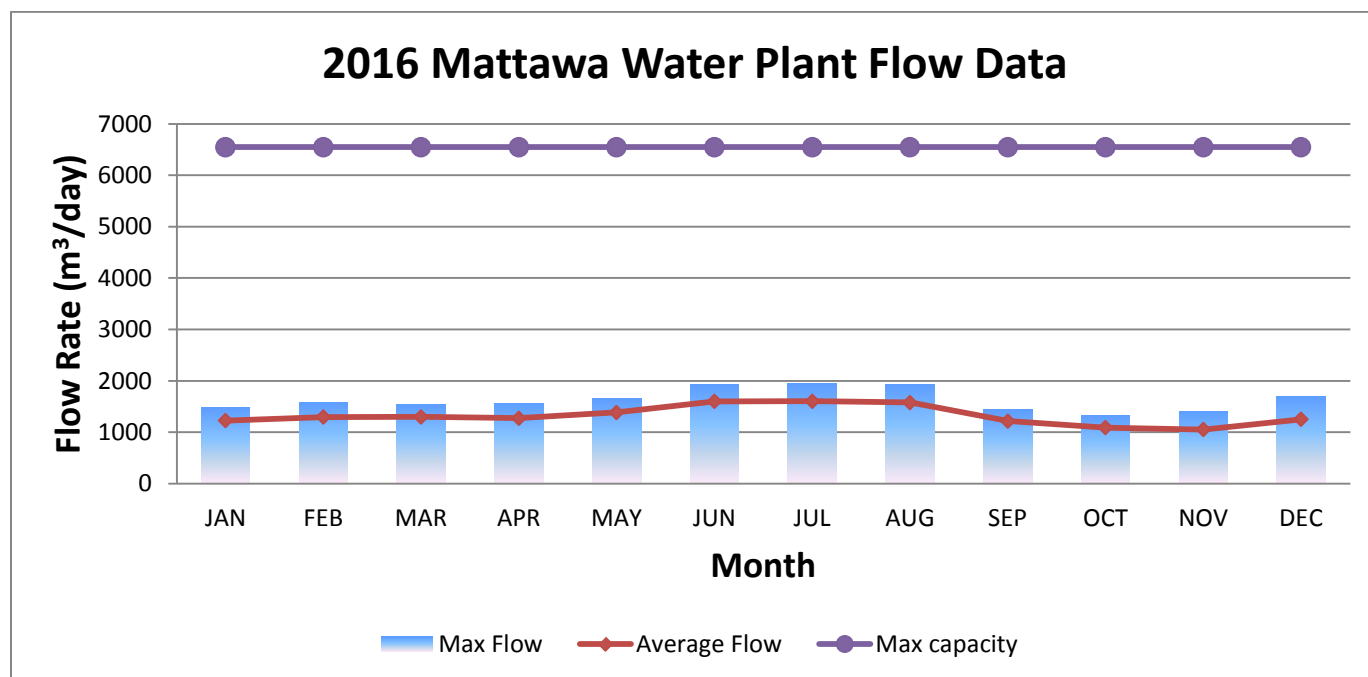
Non-Compliance	None to Report in 2016
Measures taken to comply	N/A

SUMMARY & DISCUSSION OF WATER PRODUCTION:

- From January 1st, 2016 to December 31st, 2016 the waterworks produced and supplied 484,536.35 cubic meters of drinking water to the distribution system. This represents a 6.86% increase in production over 2015.
- The monthly average quantity of water supplied by this facility compared to the capacity of the wells is listed in table form below:

Summary of Water Production for 2016

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Total Flow for month	38052.8	37526.4	40244.5	38254.7	43000.3	48063.5	49709.0	48970.7	36561.1	33808.9	31579.7	38764.7
Avg Day Flow – m ³	1227.5	1294.0	1298.2	1275.2	1387.1	1602.1	1603.5	1579.7	1218.7	1090.6	1052.7	1250.5
Max. Day Flow – m ³ :	1481.77	1579.63	1541.49	1570.66	1659.22	1935.28	1944.03	1923.24	1437.24	1333.46	1411.27	1707.36
Rated Capacity – m ³ /Day	6546.38	6546.38	6546.4	6546.4	6546.4	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38
% (Avg Day / Rated):	18.8%	19.8%	19.8%	19.5%	21.2%	24.5%	24.5%	24.1%	18.6%	16.7%	16.1%	19.1%
% (Max Day / Rated):	22.6%	24.1%	23.5%	24.0%	25.3%	29.6%	29.7%	29.4%	22.0%	20.4%	21.6%	26.1%



SUMMARY OF FLOW RATE EXCEEDANCES & ANALYTICAL RESULTS:

Flow Rates

During this period there were no exceedances of the rated capacity flow rate. Over the course of the past 10 years the municipality has undertaken a comprehensive leak detection program. This program has been effective in reducing losses to the degree that our normal production range has dropped from 2,500 – 3,000 m³ per day down to within a normal production range of 1,300 to 1,600 m³ per day. In 2016 our average water consumption was 1,327 m³/day. This rate is in line with the last 4 years, due in part to continued maintenance, improvements and modifications to our distribution system, and quick response to repairing leaks.

Our flow measuring devices were calibrated on April 22nd, 2016.

Quarterly Sampling

All tests required from our Nitrates/Nitrites & THMs quarterly sampling program yielded results below Ontario Drinking Water Standards (ODWS) Maximum Acceptable Concentration (M.A.C.). THM's were taken at the far end of the distribution system, while the Nitrates, Nitrites were taken at the plant exit (treated water sample tap). THMs were far below the M.A.C., with a 4 quarter running average of 0.0025 mg/L. The current M.A.C. is 0.100 mg/L.

Schedule 23 of O. Reg. 170/03 - Inorganics

These parameters were tested for in July of 2015 & all results were well below the M.A.C. They are due to be sampled and tested next in 2018.

Schedule 24 of O. Reg. 170/03 – Organics

These parameters were tested for in July of 2015 & all results were well below the M.A.C. or below detectable limits. They are due to be sampled and tested next in 2018.

Bacteriological

This year there was only one occurrence where a single coliform bacteria result was detected in the raw water supply. Regular testing did not indicate a negative trend forming. All treated water samples were clear of any adverse indicators, as were all distribution samples.

Free Chlorine Residual

During 2016, chlorine residual was conducted using an in-line analyzer in the water works station and handheld meters in the distribution system. Chlorine residual tests in the distribution system were carried out at various locations and various times through the day, every day of 2016. The free chlorine residual values in the distribution system ranged from 0.20 to 1.47 mg/L. Chlorine tests were conducted at least 365 times during this year.

There were no incidences to report where the maximum free chlorine residual exceeded 4.0 mg/L in either the distribution system or at the point where the water enters the distribution system.

There were no incidents to report where the free chlorine residual was less than 0.05 mg/L.

Turbidity

O. Reg 170/03 requires testing each production well on a monthly basis for turbidity. Turbidity levels of the raw water at the plant generally ranged between 0.08 and 0.23 NTUs, with one outlier result of 0.69 NTUs from Well #2 in July. Raw water turbidity is being tested with a portable turbidimeter.

TREATMENT CHEMICALS AND DOSAGE:

Sodium Hypochlorite is the only treatment/disinfection chemical used at this water production facility. The metering pumps are set to provide treated water free chlorine residuals between 0.50 mg/L and 0.70 mg/L. We monitor free chlorine residual values in the distribution system so as to work towards maintaining sufficient free chlorine levels in the distribution system to keep the water safe and aesthetically pleasing while on its way to end users.

At different times throughout the year we adjust dosage to reflect the needs of the system.

ROUTINE MAINTENANCE AND UPGRADES:

Diesel storage tank

In 2016 we replaced our 22 year old 2500 litre diesel storage tank with a new double walled, vacuum sealed 2200 litre tank. The new tank meets all codes and standards, and has above ground steel lines complete with an emergency over-fill alarm.

Well & Pump #2

International Water Supply conducted a CCTV inspection of Well #2, and performed a low level maintenance of Pump #2 while it was removed. This maintenance included replacing the rubber line shaft bearings and packing, then cleaning and painting the pump parts with a protective coating. The CCTV inspection showed that a well scouring will be required in the near future, and pitting on the pump bowls indicates a complete pump replacement will also be required shortly. The well was shock chlorinated as per special MOECC instructions, and Pump #2 was re-inserted and pump/flow tested. A complete overhaul is scheduled for 2018.

Prepared by:

A handwritten signature in black ink, appearing to read "Dan Finnigan". The signature is fluid and cursive, with a large initial "D" and "F".

Dan Finnigan
Process & Compliance Technician / ORO
Environmental Services Department