The Corporation of the Town of Mattawa
P.O. Box 390, 160 Water St.,
Mattawa, Ontario, P0H 1V0

2013 Summary Waterworks Report
per O.Reg 170 / 03

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February 27, 2014

PLANT: # Mattawa Water Works

WORKS NUMBER: 2100001905

PLANT TYPE: Municipal Drilled Wells

OPERATORS: Certified Municipal Staff

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

CONTACT PERSON: Marc Mathon, P.Eng
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DESCRIPTION:

- Water Source is from two deep drilled wells. Well #1 – 26.67m & Well #2 – 23.77m.
- Storage by underground concrete reservoir w/ 690 Cubic Meter capacity.
- Distribution system is gravity fed from the reservoir.
- 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 certificate of approval and O.Reg 170/03 as amended.

REPORTS TO THE MINISTRY
Per Section 18 of the ACT:

- During this period there were **NO** event where test results from our weekly Table "A" and Quarterly sampling program that showed indicators of adverse water quality.
- 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 2013 we operated the Town of Mattawa Waterworks in accordance with our Drinking Water Works Permit #195-201 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 now measured in cubic meters, changed in March 2011. Our SCADA system records the meter readings and provides for an ongoing report of the water produced during each day 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 m^3/day.

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

Non-Compliance	Lead Sampling – We erroneously did not take a second sample for lead during the winter 2012/2013.
Measures taken to comply	We have amended our Sampling program to include a test for lead with every sample we take for alkalinity and Ph. With this revision we expect not to repeat this error.

Non-Compliance	On March 8th, 2013 the SCADA failed to pull a reading for total flow for the day.
Measures taken to comply	We used the 1 minute incremental data pulls from our monitoring system and estimated the flow to be 1,586.13 M3 for that day. The monthly total and average was adjusted accordingly. The failure was due to a malfunction of the SCADA computer, specifically one of the drivers. The issue was repaired.

Non-Compliance	
Measures taken to comply	

SUMMARY & DISCUSSION OF WATER PRODUCTION:

- From January 1st , 2013 to December 31st, 2013 the waterworks produced and supplied 497,436.20 cubic meters of drinking water to the distribution system.

- 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 2013

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Avg Day Flow - Cu.M:	1513.7	1476.3	1422.1	1351	1304.7	1204.9	1445.7	1337.4	1429.8	1340.7	1240	1291.6
Max. Day Flow - Cu.M.:	1780	1989	1647	1684	1663	1510	1719	1733	1745	1624	1473	1571
Rated Capacity - CuMPD:	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38	6546.38
% (Avg Day / Rated):	23%	23%	22%	21%	20%	18%	22%	20%	22%	20%	19%	20%
% (Max Day / Rated):	27%	30%	25%	26%	25%	23%	26%	26%	27%	25%	23%	24%

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 C.M. down to within a normal production range of 1,360 to 1,700 C.M.

Our flow measuring devices are calibrated in the first half of each year.

Quarterly Sampling

All tests required from our Nitrates/Nitrites & THMs quarterly sampling program yielded results below ODWS M.A.C. THM's were taken at the near end of the distribution system, while the Nitrates, Nitrites were taken at the plant exit. THMs were far below the M.A.C, with a 4 quarter running average of 0.0036 mg/L.

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

These parameters were tested for in 2012 & all results were well below the M.A.C. They are due to be sampled and tested next in 2015.

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

These parameters were tested for in 2012 & all results were well below the M.A.C. or below detectable limits. They are due to be sampled and tested next in 2015.

Bacteriological

There was only the occasional presence (GBP) of bacteria in the raw water samples with no indicators of negative trends. There were **no** occasion in 2013 where coliform bacteria was present in the raw water samples with no negative trends forming.

Free Chlorine Residual

During 2013, chlorine residual was conducted using an in-line analyzer in the water works station and handheld meters in the distribution system and for raw water. Chlorine residual tests in the distribution system were carried out at various locations and various times through the day every day of 2013. The free chlorine residual values in the distribution system generally ranged from 0.10 to 1.00 mg/L. Chlorine tests were conducted 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 then 0.05 mg/L.

Turbidity

Turbidity levels of the raw water at the plant have been between 0.06 and 0.16 NTU. Since the upgrades were completed, turbidity of treated water has been monitored via the in-line analyzer, with the exception of raw water, being still tested with the hand held unit. Turbidity of treated water has been dropped from our Certificate of Approval, so we no longer monitor turbidity.

TREATMENT CHEMICALS AND DOSAGE:

Sodium Hypochlorite is the only chemical used at this water production facility. The metering pumps were set to provide approximately 1 L/hr chlorine dosage. We discovered that our system may not trigger a plant shut down in the event that both metering pumps failed to operate. The plant shut down is achieved by monitoring chlorine residual in the water distribution system just outside the plant and if the residual drops to below 0.20 mg/l the plant shuts down.

We are contacting our programming contractor to arrange for him to program our plant to ensure that a full plant shut down occurs upon the failure of both metering pumps. Until our programmer confirms that both the failure of both metering pumps will trigger a plant shut down, we will treat the failure of both metering pumps as an adverse condition as a precaution.

Prepared by:

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Marc Mathon – Public Works Superintendent