Ontario

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January 13, 2021

by email to:

Francine Desormeau	Chief Administrative Officer/Treasurer	The Corporation of the Town of Mattawa	francine.desormeau@mattawa.ca
Paul Dyrda	Sr. Operations Manager	Near North Cluster, Ontario Clean Water Agency (OCWA)	pdyrda@ocwa.com
Joshua Gravelle	Process and Compliance Technician	North Eastern Ontario Hub, OCWA	jgravelle@ocwa.com
Tim Fraser	Overall Responsible Operator	North Eastern Ontario Hub, OCWA	tfraser2@ocwa.com

RE: 2020-2021 Inspection Report for the Mattawa Drinking Water System
Drinking Water System no. 210001905
Inspection Report No. 1-OIRL7

On November 17, 2020 I conducted the annual inspection of the Mattawa Drinking Water System. The inspection included a site visit to the water treatment plant as well as a document review for the period from September 25, 2019 to November 16, 2020.

Two sections of the report, namely “Actions Required” and “Recommended Actions” identify aspects of the drinking water system’s operation with the potential for improvement.

Please note that “Actions Required” are linked to incidents of non-compliance with regulatory requirements contained within an Act, a Regulation or site-specific approvals, licenses, permits, orders, or instructions. Such violations could result in the issuance of mandatory abatement instruments including Orders, tickets, penalties, or referrals to the Ministry’s Investigations and Enforcement Branch.

Please note that the section “Recommended Actions” suggests the actions the owner and the operating authority should consider implementing in order to advance efforts already in place to address issues of source protection and emergency preparedness. Items which appear as “recommended actions” do not, in themselves, constitute violations.

Section 19 of the Safe Drinking Water Act, 2002 (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councilors, to take steps to be better informed about the drinking water systems over which they have decision making authority. There steps could include asking for a copy of this inspection report and review of its findings. Further information about Section 19 can be found in

"Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils" found at https://www.ontario.ca/page/drinking-water.

To measure the individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation and Enforcement Secretariat and the advice of internal and external risk experts. The Inspection Summary Rating Record (IRR), included as Appendix A of the inspection report, provides a summarized quantitative measurement of the drinking water system's annual inspection and regulated water quality testing performance. Please review the attached IRR methodology memo describing how the risk rating model has improved to better reflect the health related and administrative non-compliance found in the inspection report.

IRR ratings are published (for the previous inspection year) in the Ministry's Chief Drinking Water Inspector's Annual Report. If you have any questions or concerns regarding the rating, please contact Angela Whiteley, A/Water Compliance Supervisor, Timmins/North Bay at (705) 491-0406.

Electronic copies of this inspection report have been sent to the North Bay Parry Sound Health Unit and the North Bay-Mattawa Conservation Authority in accordance with the Ministry's Municipal Drinking Water Inspection Protocol.

Thank you for your co-operation. If you have any questions about this inspection report, please contact me at (705) 491-2781 or by email at vesna.alimpic@ontario.ca.

Sincerely,

VAlimpic

Vesna Alimpic
Water Inspector/Provincial Officer
Drinking, Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks
North Bay Office

c: Robert A-Muhong, Manager, Environmental Health Programs, North Bay Parry Sound District Health Unit
David Ellingwood, Supervisor Source Water Protection, North Bay-Mattawa Conservation Authority
Josh DeWaal, Operator, North Eastern Ontario Hub, OCWA
Angela Whiteley, A/Water Compliance Supervisor, Timmins/North Bay, Northern Region, Drinking Water and Environmental Compliance Division, Ministry of the Environment, Conservation and Parks

Ontario

Ministry of the Environment, Conservation and Parks

MATTAWA DRINKING WATER SYSTEM

Inspection Report

Site Number:	210001905
Inspection Number:	1-OIRL7
Date of Inspection:	Nov 17, 2020
Inspected By:	Vesna Alimpic

Table of Contents:

OWNER INFORMATION:

Company Name: MATTAWA, THE CORPORATION OF THE TOWN OF
Street Number: 160 **Unit Identifier:**
Street Name: WATER St
City: MATTAWA
Province: ON **Postal Code:** P0H 1V0

CONTACT INFORMATION

Type: Owner **Name:** Francine Desormeau
Phone: (705) 744-5611 **Fax:** (705) 744-0104
Email: francine.desormeau@mattawa.ca
Title: Chief Administrative Officer/Treasurer, The Corporation of the Town of Mattawa

Type: Operating Authority **Name:** Paul Dyrda
Phone: (705) 303-9767 **Fax:** (705) 752-5965
Email: pdyrda@ocwa.com
Title: Senior Operations Manager, Ontario Clean Water Agency (OCWA), North Eastern Ontario Hub

Type: Operating Authority **Name:** Yvan Rondeau
Phone: (705) 567-3955 **Fax:** (705) 597-7974
Email: yrondeau@ocwa.com
Title: Safety, Process and Compliance Manager, OCWA, North Eastern Ontario Hub

Type: Operating Authority **Name:** Josh Gravelle
Phone: (705) 568-7000 **Fax:** (705) 567-7974
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Title: Process and Compliance Technician, OCWA, North Eastern Ontario Hub

Type: Operating Authority **Name:** Tim Fraser
Phone: (705) 471-8115 **Fax:**
Email: tfraser2@ocwa.com
Title: Overall Responsible Operator, OCWA, North Eastern Ontario Hub

Type: Operating Authority **Name:** Josh DeWaal
Phone: (705) 471-5084 **Fax:**
Email: jdewaal@ocwa.com
Title: Operator, OCWA, North Eastern Ontario Hub

Type: Health Unit **Name:** Robert Muhong
Phone: (705) 474-1400 **Fax:** (705) 474-8252
Email: robert.a-muhong@healthunit.ca
Title: Manager, Environmental Health, North Bay Parry Sound District Health Unit

Type: MECP **Name:** Angela Whiteley
Phone: (705) 491-0406 **Fax:** (705) 497-6866
Email: angela.whiteley@ontario.ca
Title: A/Water Compliance Supervisor, Ministry of Environment, Conservation and Parks, Timmins/North

Bay

INSPECTION DETAILS:

Site Name:	MATTAWA DRINKING WATER SYSTEM
Site Address:	400 BISSETT Street MATTAWA ON P0H 1V0
County/District:	MATTAWA
MECP District/Area Office:	North Bay Area Office
Health Unit:	NORTH BAY PARRY SOUND DISTRICT HEALTH UNIT
Conservation Authority:	North Bay Mattawa Conservation Authority
MNR Office:	North Bay District Office
Category:	Large Municipal Residential
Site Number:	210001905
Inspection Type:	Unannounced
Inspection Number:	1-OIRL7
Date of Inspection:	Nov 17, 2020
Date of Previous Inspection:	Sep 25, 2019

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point **Sub Type:**

Site (Name): WELL 1 RAW
Type: Source **Sub Type:** Ground
Comments:
Well # 1 was constructed in 1958 per well record 4300581. It is the larger of the two wells located within the well house at 400 Bissett Street. It is a gravel wall type of construction and had a total depth of 26.5 m. A 660 mm diameter steel outer casing extends from grade to a depth of 19.1 m. A 400 mm diameter inner casing extends from grade to 22.1 m and a 400 mm diameter stainless steel screen extends from 22.1 m to 26.7 m. Well #1 is equipped with a 100 Hp vertical turbine pump and is rated at 53 L/s at a 105.8 m TDH. The pump is set at approximately 21.9 m below grade. The well head is approximately 30 cm above the pumphouse floor. Well # 1 is generally operated as the duty well from 6 a.m. to midnight to meet higher water demand period. The switchover of well pumps is controlled by a timer within the system's programmable logic controller.

Site (Name): WELL 2 RAW
Type: Source **Sub Type:** Ground
Comments:
Well # 2 was constructed in 1949 per well record 4300579. It is the smaller of the two wells located within the well house at 400 Bissett Street. It is a gravel wall type well construction and has a total depth of 23.8 m. A 560 mm diameter steel outer casing extends from grade to a depth of 18.6 m. A 300 mm diameter inner casing extends from grade to 20.6 m and a 300 mm diameter #6 stainless steel screen extends from 20.6 m to 23.6 m. Well # 2 is equipped with a 40 Hp vertical turbine pump and is rated at 22.7 L/s at a 91.5 m TDH. The pump is set at approximately 17.3 m below grade. The well head is approximately 15 cm above the pumphouse floor. Well # 2 is generally operated as the duty well from midnight to 6 a.m. for energy conservation purposes.

Site (Name): PUMPHOUSE
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:
The pumphouse is located at 400 Bissett Street. Raw water flows from the wells into a common 200 mm discharge

header within the pump house. Primary disinfection is achieved using two ultraviolet reactors. Each unit is capable of providing a minimum ultraviolet dosage of 40 mJ/cm² at a peak flow rate of 75.7 L/s and raw water ultraviolet transmittance of 95%.

Secondary disinfection with 12% sodium hypochlorite is completed in the common discharge header prior to entry to the distribution system. The hypochlorite system consists of one 200 L storage tank, with spill containment, and two chemical metering pumps (one duty and one standby) with discharge lines into the common discharge header. The chemical metering pumps are equipped with an automatic switch-over device and controls which provide for flow proportional dosing. If both dosing pumps fail an alarm to the pager is initiated and the raw water pumps automatically shut down. A sample line is installed on the 150 mm discharge header so that continuous on-line monitoring for free chlorine residual can be achieved. There is a pipe that leads treated water from the point of entry to the distribution system that is used for cooling of the diesel generator and the UV reactors during their warm up cycle and for water lubrication of the pump for Well # 1.

A supervisory control and data acquisition (SCADA) system was put in place in 2011 to enhance the automated control of the water production and treatment components and to produce the required performance and monitoring reports. Backup power is supplied by a 300 kW diesel generator equipped with an automatic transfer switch and a 2,200 L capacity above ground fuel tank. This system can run the entire pumphouse, as well as a nearby sewage lift station. Other meters and appurtenances are contained within the pumphouse in accordance with the requirements of system's recently issued Municipal Drinking Water Licence and Drinking Water Works Permit.

Site (Name): RESERVOIR
Type: Other **Sub Type:** Reservoir
Comments:
The in-ground reservoir has an operating capacity of 795 cubic metres and is located 700 metres to the northwest of the well house. The normal high operating water level in the reservoir is approximately 70 metres of elevation above the well house. The reservoir is located within a fenced compound and is equipped with two access hatches, two vent pipes and an overflow pipe. Monitoring of the reservoir level is used to control the operation of the well pumps at the pumphouse.

Site (Name): DISTRIBUTION
Type: Other **Sub Type:** Other
Comments:
The population of Mattawa is approximately 2,150. The distribution system is fed from the well house when the pumps are operating, with excess water being directed to the elevated in ground reservoir. When the well pumps are off the distribution is gravity fed from the reservoir. The system has approximately 1,050 service connections to residential and commercial consumers. There is approximately 20,000 metres of various sized cast iron, ductile iron and polyvinyl chloride piping. There are 107 fire hydrants and 239 valves in the distribution system.

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water related policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment and distribution components as well as management practices.**

  This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

  This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

  This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

  On November 17, 2020 Ministry of the Environment, Conservation and Parks Water Inspector Vesna Alimpic conducted an inspection of Mattawa Drinking Water System (DWS). The inspector was accompanied by Mr. Tim Fraser, Overall Responsible Operator (ORO) with Ontario Clean Water Agency (OCWA) and Mr. Josh DeWaal, operator-in-charge, also from OCWA. Information for the inspection was also provided by Mr. Joshua Gravelle, Process Compliance Technician from OCWA.

  The Corporation of the Town of Mattawa is the owner of the Mattawa DWS and Distribution System. The operating authority for the Mattawa DWS is OCWA.

  Inspection included a tour and physical review of the components of the drinking water system and a review of the system documents for the period from the last inspection conducted on September 25, 2019 to the date of the current inspection. This period is referred to as the "inspection period" in this report.

  Specifically, this included a review and assessment of operating practices in relation to the following documents:
  - Drinking Water System Regulation O. Reg. 170/03;
  - Certification of Drinking Water Systems Operators Regulation O. Reg. 128/04;
  - Permit to Take Water (PTTW) No. 1546-9GHPLM dated February 27, 2014;
  - Municipal Drinking Water Licence (MDWL) No. 195-101 Issue No. 2 dated July 25th, 2016; and
  - Drinking Water Works Permit (DWWP) No. 195-201 Issue No. 2 dated July 25th, 2016.

Source

- **The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.**

  The wells are located in the Mattawa Water Treatment Plant building. During the physical inspection, there was no indication of possibility of entry of surface water and other foreign materials into the wells.

Source

- **Measures were in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**

  Condition 2.3 of Drinking Water Works Permit 195-201 Issue No. 2 from July 25, 2016 requires that all parts of the drinking water system in contact with drinking water which are taken out of service for inspection, repair or other activities that may lead to contamination, must be disinfected before being put into service in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:
  a) The Ministry's Watermain Disinfection Procedure, effective January 25, 2017;
  b) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
  c) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
  d) AWWA C654 – Standard for Disinfection of Wells.

  Conditions 16.2.8, 16.2.9 and 16.2.10 of the MDWL require the owner to develop well inspection schedules and maintenance procedures, as well as remedial action plans where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

  Based on the information provided, there were no activities that would pose risk to the groundwater source during the inspection period. The operating authority conducts annual visual inspections of above ground sections of the wells.

Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**

  As per DWWP, there are magnetic flow meters installed on the discharge of well # 2 and on the treated water discharge from the well house to the distribution system. The production from well # 1 is calculated as the difference in flow between the treated water and raw water readings.

- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**

  Rated capacity identified in the MDWL is 6,540 m^3/day. Review of daily water takings provided by the operating authority has shown that maximum daily takings were below the rated capacity. Maximum water taking was recorded on July 8, 2020 with 2,658 m^3 taken on that day, which is 40% of the rated capacity.

Treatment Processes

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

  All physical components listed on the DWWP were observed to be in place at the facility. They were all installed, connected to the system and operational.

- **The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.**

  Conditions 4.1 to 4.6 of Schedule B to the DWWP specify that the drinking water system may be altered by adding, modifying or replacing specific components in the drinking water system listed in Conditions 4.1 to 4.3 and that any addition, modification, replacement or removal of drinking water system listed in Conditions 4.1 to 4.3 is to be verified in writing by the owner, recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" and retained for a period of ten years by the owner.

  There were two Form 2 documents prepared during the inspection period as per DWWP requirements:
  - for the replacement of a sodium hypochlorite tank; and

Treatment Processes

- for the addition of variable frequency drive (VFD) motor controller to Well # 2.

- **Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.**

  Section 1-2(2) of Schedule 1 of O. Reg. 170/03 requires that the owner of a drinking water system and the operating authority for the system must ensure that the treatment equipment required by Section 1-3 is operated in a manner that achieves the design capabilities it is required to have under this section.

  Section 1-3 of Schedule 1 of O. Reg. 170/03 requires that the owner of a drinking water system that uses water from a raw water supply that is ground water must ensure that the water treatment equipment provided is designed to be capable of achieving, at all times, primary disinfection in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario, including at least 99 per cent (2 log) removal or inactivation of viruses by the time water enters the distribution system.

  Schedule E to the MDWL assigns 2 log removal/inactivation credits for viruses to the existing UV disinfection system operating at UV dosage of 40 mJ/cm^2, as well as 2 log removal/inactivation for Cryptosporidium oocysts and 3 log removal/inactivation for Giardia cysts. Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

  In order to achieve the assigned removal credits for primary disinfection, the UV system must be operated within the validated limits for flow rate, calculated UV dosage, UV Transmittance, and UV lamp status in accordance with MDWL. A UV reactor is operating off specification when it operates outside of the validated range. The MDWL specifies the following operational requirements for the achievement of assigned log removal/inactivation credits for the process of UV disinfection at Mattawa DWS:

  - Ultraviolet light disinfection equipment shall have a feature that ensures that no water is directed to users of water treated by the equipment or that causes an alarm to sound in the event that the equipment malfunctions, loses power or ceases to provide the appropriate level of disinfection;
  - Water shall not flow through a UV reactor when the reactor's UV lights are off or not fully energized;
  - UV lamp status shall indicate whether each UV lamp is on or off;
  - All UV sensors shall operate within their calibration range or corrective measures shall be taken; and
  - Installed or replaced UV equipment components shall be equal or better than the components used during validation testing unless the UV equipment was revalidated.

  A review of the provided UV dosage and flow records confirmed that the treatment equipment was operated in a manner that achieved the required design capabilities during the inspection period.

- **Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**

  A review of distribution system chlorine residuals confirmed that the free chlorine residual was never less that 0.05 mg/L. The free chlorine residual measured in the distribution system ranged from 0.12 mg/L to 1.15 mg/L during the inspection period.

- **Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.**

- **The primary disinfection equipment was equipped with alarms or shut-off mechanisms that satisfied the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03.**

Treatment Processes

Section 1-6(1) of Schedule 1 of O. Reg. 170/03 states that the owner must ensure that the disinfection equipment is designed and operated so that, if the disinfection equipment malfunctions, loses power or ceases to provide the appropriate level of disinfection, no water is directed to users and a certified operator takes appropriate action at the location where the equipment is installed before water is again directed to users.

The UV reactors are equipped with alarms and shut off mechanisms. The alarm set point for the UV dosage is set at 48 mJ/cm². If the UV dosage falls below 48 mJ/cm², the duty UV reactor (UVR) will alarm and shut down both the UVR unit and the duty well pump. The standby UVR is then brought on-line and the duty pump re-started when the UVR unit completes its required start-up protocols. In case of an alarm on the stand-by UVR unit, the unit would alarm and shut off the UVR unit and the duty well pump. In this case, an operator intervention is required to resolve the issue and continue with water treatment. The UVR will shut off after 60 seconds cumulative time with dosage below 48 mJ/cm². The facility recently introduced a shut off mechanism for events when the UV transmittance analyzer reads less than 95% or the instrument losses power or malfunctions.

Treatment Process Monitoring

- **The secondary disinfectant residual was measured as required for the distribution system.**

  Subsection 7-2(3) of Schedule 7 of O. Reg. 170/03 requires that the owner of a large municipal residential system that provides secondary disinfection and the operating authority for the system must ensure that at least seven distribution samples are taken each week and are tested immediately for free chlorine residual. Unless at least one sample is taken on each day of the week, at least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week. At least three of the samples must be taken on a second day of the week, at least 48 hours after the last sample was taken. When more than one sample is taken on the same day of the week under paragraph 1 or 2, each sample must be taken from a different location.

  A review of sampling data confirmed that during the inspection period the operating authority sampled for free chlorine residuals twice a week, taking four samples on one day of the week and three samples on a second day of the week with at least 48 hours between the samples.

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

- **The owner and operating authority did not ensure that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.**

  Subsection 1-6(3) of Schedule 1 to O. Reg. 170/03 specifies that if primary disinfection equipment that does not use chlorination or chloramination is provided by a large municipal residential system, the owner of the system and the operating authority for the system must ensure that the disinfection equipment has a recording device that continuously records the performance of the disinfection equipment.

  Condition 1.6.2 of Schedule C to the MDWL specifies that for Mattawa Water Treatment Plant while directing water to the distribution system and in addition to any other sampling, analysis and recording that may be required, the ultraviolet light disinfection equipment must test for calculated UV dose, flow rate; UV transmittance, UV lamp status at a testing frequency of once every five (5) minutes or less and record the test data at a recording frequency of once every four (4) hours or less.

  Performance of the disinfection equipment is continuously monitored and recorded using a supervisory control and data acquisition (SCADA) control system and a chart recorder. According to the information provided, SCADA performs tests for the test parameters every 12 seconds and the chart recorder tests every 5 seconds. Calculated UV dose and flow rate are recorded continuously. UV transmittance (UVT) is recorded every second and minimum, maximum and average values are shown in daily reports. On-line UVT analyzer is calibrated every three months.

Treatment Process Monitoring

UV lamp status is monitored on the SCADA screen and recorded indirectly by recording of flow rate – when there is flow, the UV lamp is active.

Based on the information provided by the operating authority, UV transmittance (UVT) analyzer failed to provide continuous monitoring of UVT on two occasions during the inspection period. The first event occurred on March 11, 2020, when the UVT analyzer was showing zero and negative value for UVT from 12:39 to 12:59. The operating agency provided the SCADA recording to demonstrate that the UV intensity was meeting the disinfection criteria as specified by the MDWL and that the WTP ran without interruption while the UVT analyzer was out of service. The UVT analyzer was back to normal functioning on March 11, 2020 at 13:00. The second event occurred on July 13, 2020 when the UVT analyzer was not monitoring UVT from 11:45 to 13:43. During this time the UVT in SCADA is shown as a flat line. UVT analyzer was repaired on July 13, 2020 at 14:00.

The following actions were taken to address the non-compliance:
- the operating authority reviews the UVT during the remote reviews and records the results on a UVT monitoring monthly summary form;
- In the event of an abnormal UVT trend line, the event is reported to the OCWA Process Compliance Technician; and
- A shut off mechanism for events when the UV transmittance analyzer reads less than 95% or instrument loses power or malfunctions was installed on SCADA in November 2020.

Failure to ensure that the disinfection equipment has a recording device that continuously records the performance of the disinfection equipment, if primary disinfection equipment that does not use chlorination or chloramination is provided by a large municipal residential system, is a violation of Subsection 1-6(3) of Schedule 1 to O. Reg. 170/03.

Please refer to item # 1 of the Non-Compliance with Regulatory Requirements and Actions Required section of this report for further direction related to this item.

- **All UV sensors were checked and calibrated as required.**

The MDWL specifies the following requirements for Duty UV Sensor Checks and Calibration:
1. Duty UV sensors shall be checked on at least a monthly basis against a reference UV sensor or at a frequency as otherwise recommended by the UV equipment manufacturer;
2. When comparing a duty UV sensor to a reference UV sensor, the calibration ratio (intensity measured with the duty UV sensor/intensity measured with the reference UV sensor) shall be less than or equal to 1.2;
3. If the calibration ratio is greater than 1.2, the duty UV sensor shall be replaced with a calibrated UV sensor or a UV sensor correction factor shall be applied while the problem with the UV sensor is being resolved; and
4. Reference UV sensors shall be checked against a Master Reference Assembly at a minimum frequency of once every three years or on a more frequent basis depending upon the recommendations of the equipment manufacturer;

Based on the review of available data and information provided by the operating authority, the following has been noted:
1. During the inspection period, duty UV sensors were checked on monthly basis against a reference UV sensor.
2. and 3. During the inspection period, the calibration ratio was less than or equal to 1.2; and
4. There are currently two reference sensors on site. One reference sensor was calibrated by the manufacturer in August 2019. The second reference sensor was delivered on site in January 2020 and is planned to be calibrated in 2021.

Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient**

Operations Manuals

for the safe and efficient operation of the system.

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA.**

Logbooks

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Security

- **The owner had provided security measures to protect components of the drinking water system.**

  The facility is equipped with an intrusion alarm system, security fencing and lighting. Operators visit the treatment plant on work days or more frequently when required.

  The in-ground reservoir is located within a secured fenced compound. The reservoir's control and monitoring systems are contained within a locked building equipped with entry alarms.

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**

  OCWA is the operating authority for the Mattawa Drinking Water System. Tim Fraser is the designated overall responsible operator (ORO) for Mattawa WTP and distribution system. Alternate operators that may function as a designated ORO while on call for this facility are Don Michaud, Darren Aljoe and Gerry Duguay.

- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**

- **All operators possessed the required certification.**

- **Only certified operators made adjustments to the treatment equipment.**

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples were being met.**

  Section 10-2 of Schedule 10 of O. Reg. 170/03 requires that the owner of a drinking-water system and the operating authority for the system must ensure that at least ten distribution samples are taken every month, with at least one of the samples being taken in each week. The owner of the drinking-water system and the operating authority for the system must ensure that each of the samples is tested for Escherichia coli and total coliforms and that at least 25 per cent of the samples required to be taken are tested for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).

  A review of the sampling records confirmed that samples from distribution were collected weekly and tested for E. coli and total coliforms, resulting in 12 to 15 monthly samples during the inspection period. Three distribution samples were tested for HPC monthly, satisfying the requirement that at least 25 per cent of the 10 required monthly distribution samples are tested for HPC.

- **All microbiological water quality monitoring requirements for treated samples were being met.**

Water Quality Monitoring

Section 10-3 of Schedule 10 of O. Reg. 170/03 requires the owner of a drinking-water system and the operating authority for the system must ensure that a treated water sample is taken at least once every week and tested for Escherichia coli, total coliforms and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).

A review of the sampling records confirmed that samples of treated water were collected weekly and tested for Escherichia coli, total coliforms and HPC during the inspection period.

- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Section 13-2 of Schedule 13 of O. Reg. 170/03 requires that the owner of a large municipal residential system and the operating authority for the system must ensure that at least one treated water sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner of a large municipal residential system and the operating authority for the system must ensure that each of the samples is tested for every parameter set out in Schedule 23 (Inorganics).

  Sampling for the purpose of testing for Schedule 23 parameters was conducted on July 31, 2018.

- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Section 13-4 of Schedule 13 of O. Reg. 170/03 requires that the owner of a large municipal residential system and the operating authority for the system must ensure that at least one treated water sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner of a large municipal residential system and the operating authority for the system must ensure that each of the samples is tested for every parameter set out in Schedule 24 (Organics).

  Sampling for the purpose of testing for Schedule 24 parameters was conducted on July 31, 2018.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

  Section 13-6.1 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system that provides chlorination and the operating authority for the system must ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water systems distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids and tested for haloacetic acids (HAA).

  On January 1, 2020, Ontario Drinking Water Quality Standards Regulation, O. Reg. 169/03 standard for HAA (80 µg/L) came into effect and is expressed as a RAA, where RAA is defined as "the running annual average of quarterly results" for HAA for a drinking water system.

  A review of sampling data confirmed that the samples for HAA were collected quarterly during the inspection period. Concentrations of HAAs for the inspection period have been reported to be under the lab's Method Detection Limit (MDL), which is 2 µg/L for Near North Laboratories that analyses the Mattawa DWS HAA samples. If the MDL is used for the calculation of RAA, the RAA for HAAs is 2 µg/L as of October 7, 2020.

- **All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

  Subsection 13-6 of Schedule 13 of O. Reg. 170/03 requires the owner of a drinking water system that provides chlorination and the operating authority for the system must ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system that is likely to have an

Water Quality Monitoring

elevated potential for the formation of trihalomethanes and tested for trihalomethanes (THMs).

Ontario Drinking Water Quality Standards Regulation, O. Reg. 169/03 sets the standard for THMs is 0.100 mg/L (100 µg/L) expressed as a RAA, where RAA is defined as "the running annual average of quarterly results" for THMs for a drinking water system. O. Reg. 170/03 defines the "calendar quarter" as the three-month period that begins on January 1, April 1, July 1 or October 1.

A review of sampling data confirmed that the samples for THMs were collected quarterly during the inspection period. The RAA for THMs was 2.6 µg/L as of October 7, 2020.

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS.**

  Section 13-7 of Schedule 13 of O. Reg. 170/03 requires that the owner of a drinking water system and the operating authority for the system must ensure that at least one water sample is taken every three months and tested for nitrate and nitrite.

  A review of the sampling records confirmed that during the inspection period samples of treated water were collected every three months.

- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Section 13-8 of Schedule 13 requires that the owner of a drinking water system and the operating authority for the system must ensure that at least one treated water sample is taken every 60 months and tested for sodium.

  The most recent sodium sample was collected on January 16, 2018.

- **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Section 13-9 of Schedule 13 requires that the owner of a drinking water system and the operating authority for the system must ensure that at least one treated water sample is taken every 60 months and tested for fluoride.

  The most recent fluoride sample was collected on January 16, 2018.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

Water Quality Assessment

- **Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

Reporting & Corrective Actions

- **When the primary disinfection equipment, other than that used for chlorination or chloramination, has failed causing an alarm to sound or an automatic shut-off to occur, a certified operator responded in a timely manner and took appropriate actions.**

Other Inspection Findings

- **The following items are noted as being relevant to the Drinking Water System:**

Other Inspection Findings

Mattawa DWS provides water to the southern part of town by a 15" watermain pipe that crosses Mattawa River. During spring flood in 2019, the watermain lost some of its concrete ballasts and was floating under the water surface. In January 2020, a visual inspection of the pipe was performed by divers, which identified the displacement of concrete collars and a gouge in the pipe. In January 2020, the operating authority in cooperation with Jp2g Consultants Inc. and municipal authorities organized sinking of the pipe with new concrete ballasts.

Due to a concern that the potential leaks on the pipe may compromise the water supply, the ministry requested that the operating authority and the consultant provide a confirmation that the pipe integrity has not been compromised and an action plan to address any potential leaks in the pipe. The consultants proposed the following measures in the action plan: a follow up survey of the pipe, monitoring of pressure at the WTP or reservoir and monitoring of flows.

Upon discussing the proposed action plan and measures in place in a teleconference with the owner, operating authority and consultants, it was agreed that the operating authority and the consultant would prepare a proposal for a pressure monitoring station.

A pressure monitoring gauge was installed on a distribution line in the water treatment plant to monitor for changes in pressure in the 15" watermain and the distribution pressure has been alarmed in the WTP SCADA. The operating authority provided pressure monitoring trends to demonstrate that a change in pressure on a pipe served by the 15" watermain would show in the pressure trends recorded by SCADA. The operating authority informed the ministry that a second dive was conducted to inspect the pipe with satisfactory results in November 2020; the report and the video of the inspection are to be provided to ministry staff when available.

The ministry will continue to work closely with the owner, operating authority and the consultants to ensure that Mattawa DWS is supplying safe drinking water to users.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

1. **The owner and operating authority did not ensure that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment.**

   Based on the information provided by the operating authority, UV transmittance (UVT) analyzer failed to provide continuous monitoring of UVT on two occasions during the inspection period: on March 11, 2020 and on July 13, 2020, resulting in loss of continuity in recording of the performance of the disinfection equipment..

   The following actions were taken to address the non-compliance:
   - the operating authority reviews the UVT during the remote reviews and records the results on a UVT monitoring monthly summary form;
   - In the event of an abnormal UVT trend line, the event is reported to the OCWA Process Compliance Technician; and
   - A shut off mechanism for events when the UV transmittance analyzer reads less than 95% or instrument loses power or malfunctions was installed on SCADA in November 2020.

   Action(s) Required:

   No further action required.

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

Not Applicable

SIGNATURES

Inspected By:

Vesna Alimpic

Signature: (Provincial Officer)

Reviewed & Approved By:

Angela Whiteley

Signature: (Supervisor)

Review & Approval Date: January 13, 2021

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.

APPENDIX A

INSPECTION RATING RECORD

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2020-2021)

DWS Name:	MATTAWA DRINKING WATER SYSTEM
DWS Number:	210001905
DWS Owner:	Mattawa, The Corporation Of The Town Of
Municipal Location:	Mattawa
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	November 17, 2020
Ministry Office:	North Bay Area Office

Maximum Question Rating: 416

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 102
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 112
Reporting & Corrective Actions	0 / 21
Treatment Process Monitoring	4 / 53
TOTAL	**4 / 416**

Inspection Risk Rating	**0.96%**

FINAL INSPECTION RATING:	**99.04%**

Inspection Rating Record Generated On 13-JAN-21 (Inspection ID: 1-OIRL7).

Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2020-2021)

DWS Name:	MATTAWA DRINKING WATER SYSTEM
DWS Number:	210001905
DWS Owner:	Mattawa, The Corporation Of The Town Of
Municipal Location:	Mattawa
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	November 17, 2020
Ministry Office:	North Bay Area Office

Non-compliant Question(s)	Question Rating
Treatment Process Monitoring	
If primary disinfection equipment that does not use chlorination or chloramination is provided, has the owner and operating authority ensured that the equipment has a recording device that continuously records the performance of the disinfection equipment?	4
TOTAL QUESTION RATING	4

Maximum Question Rating: 416

Inspection Risk Rating	**0.96%**
FINAL INSPECTION RATING:	**99.04%**

Inspection Rating Record Generated On 13-JAN-21 (Inspection ID: 1-OIRL7).

APPENDIX B

STAKEHOLDER APPENDIX

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or waterforms@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater

PUBLICATION TITLE	PUBLICATION NUMBER
FORMS: Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	 012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

Ontario

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment. Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à waterforms@ontario.ca si vous avez des questions ou besoin d'aide.

Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable Avis de demande de services de laboratoire Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-2149F 012-2148F 012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau portable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web

Ontario