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To/Destinataire

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The Corporation of the Municipality of
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From/Expéditeur ou expéditrice

Vesna Alimpic
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Pages to follow/N^{bre} de pages ci-jointes 16

Message

Hello Scott,

As you are aware, an inspection of Powassan Drinking Water System was conducted on November 28, 2017. Please find attached a copy of the 2017-18 Powassan Drinking Water System Draft Inspection Report for review. Please report back any factual errors or omissions by January 12, 2018.

Vesna Alimpic
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Ministry of the Environment and Climate Change

**POWASSAN DRINKING WATER SYSTEM
Inspection Report**

Site Number:	220000576
Inspection Number:	1-F7QGL
Date of Inspection:	Nov 28, 2017
Inspected By:	Vesna Alimpic


**Ministry of the Environment and Climate Change
Inspection Report**
OWNER INFORMATION:

Company Name:	POWASSAN, THE CORPORATION OF THE MUNICIPALITY OF		
Street Number:	466	Unit Identifier:	
Street Name:	MAIN St		
City:	POWASSAN		
Province:	ON	Postal Code:	P0H 1Z0

CONTACT INFORMATION

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Title:	Water Compliance Supervisor - Timmins / North Bay - SDWB		



Ministry of the Environment and Climate Change Inspection Report

INSPECTION DETAILS:

Site Name: POWASSAN DRINKING WATER SYSTEM
Site Address: POWASSAN
County/District: Powassan
MOECC 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 Regional Office
Category: Large Municipal Residential
Site Number: 220000578
Inspection Type: Announced
Inspection Number: 1-F7QGL
Date of Inspection: Nov 28, 2017
Date of Previous Inspection: Nov 01, 2016

COMPONENTS DESCRIPTION

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

Sub Type:

Site (Name): Well #1 (Raw Water)
Type: Source

Sub Type: Ground

Comments:

The Drinking Water Works Permit (DWWP) no. 266-201 issue No. 2 describes Well # 1 as follows:

- The well is located at Lot 17, Concession 13 in the Municipality of Powassan, Ontario
- 150 mm diameter x 23.2 m deep drilled overburden production well including 3.8 m of screen, discharging into the distribution system through the pumphouse process piping.
- The well is equipped with a submersible pump with a rated capacity of 15.2 L/second at a total dynamic head of 92.2 m and one (1) 100 mm diameter flowmeter.

Note: There is a monitoring well located 5 m to the south of Well # 1 and protected by a 450 mm diameter, vertical corrugated steel pipe around the well casing and standing 1.2 m above ground level.

Site (Name): Well #2 (Raw Water)
Type: Source

Sub Type: Ground

Comments:

The Drinking Water Works Permit (DWWP) no. 266-201 issue No. 2 describes Well # 2 as follows:

- The well is located at Lot 17, Concession 13 in the Municipality of Powassan, Ontario.
- 300 mm diameter x 18.6 m deep drilled overburden production well including 7.6 m of screen.
- The well is equipped with a submersible pump with a rated capacity of 15.2 L/second at a total dynamic head of 92 m and one (1) 100 mm diameter flowmeter.

Note: The well is located within the Genesee Creek flood plain. There is a 150 mm diameter test well located approximately 3.0 m to the east of Well # 2.

Site (Name): Treated Water
Type: Treated Water POE

Sub Type: Pumphouse



Ministry of the Environment and Climate Change Inspection Report

Comments:

The treatment process at the Powassan Drinking Water System is comprised of primary and secondary disinfection using 12% sodium hypochlorite. The Drinking Water Works Permit (DWWP) no. 266-201 Issue No. 2 describes the treatment facility as follows:

- The treatment facility is located at 76 Fairview Lane, Municipality of Powassan, Ontario.
- Pump house consisting of a 4.7 m x 6.9 m masonry building containing process piping, flowmeters, raw and treated water sample points, disinfection system, pump system controls, electrical systems, a drainage system with an external soak away pit sized for 1440 L/day and all associated appurtenances.
- Chlorination system consisting of two (2) sodium hypochlorite chemical feed pumps (1 duty and 1 standby), flow paced and equipped with auto switchover controls feeding at the discharge header. Chlorine is kept in two (2) sodium hypochlorite chemical solution tanks (duty, standby) and one spill containment basin.
- Chlorine contact pipe consisting of a 49 m length of 600 mm diameter serpentine pipeline installed below grade to provide adequate contact time at maximum flow and before the first consumer together with two (2) sample lines (duty, standby), each installed with a backflow preventer, feeding back to pump house for continuous water quality monitoring.
- Standby power consisting of one (1) 65 kW/81 kVA minimum rated standby diesel generator set, complete with a double walled fuel tank and automatic transfer switch, all installed in an external weatherproof and acoustic enclosure.
- Monitoring equipment consisting of two (2) magnetic flowmeters, one at each of the raw water feed pipes and online instrumentation that continuously monitors and records free chlorine residual at point of entry, and raw flows.

Site (Name): In-Ground Reservoir

Type: Other

Sub Type: Reservoir

Comments:

The Drinking Water Works Permit (DWWP) no. 266-201 issue No. 2 describes the off-site storage reservoir as follows:

- The reservoir is located at 34 McRae Drive, Municipality of Powassan, Ontario.
- The storage reservoir is in-ground with interconnected two cells. Each reservoir cell sized approximately 9.3 m x 13 m x 5.5 m water depth and complete with an inlet/outlet line, level sensor and a 300 mm diameter emergency overflow pipe.
- Total capacity of the reservoir is 1,278 m³.
- The equipment in the reservoir consists of a 250 mm diameter inlet line to reservoir cell no. 1 complete with two (2) control valves, a check valve and a 200 mm diameter bypass line with a control valve and a 250 mm diameter outlet line to reservoir cell no. 2 complete with two (2) control valves, a magnetic flowmeter, a check valve and a 200 mm diameter bypass line with a control valve.

The reservoir has an operating high water level of 310 m.

The facility has a prefabricated re-chlorination building located on top of an in-ground valve chamber with the following equipment:

- Two (2) sodium hypochlorite chemical feed pumps (duty and standby), injecting sodium hypochlorite solution (on demand) into the reservoir outlet line.
- One (1) sodium hypochlorite chemical storage tank with low level switch and spill containment.
- One (1) chlorine residual analyzer sampling water from reservoir outlet line approximately 70 m of 250 mm diameter reservoir feeder main from reservoir site boundary to valve chamber
- All instrumentation and controls for operation and communication of status and fault conditions.
- One (1) eight kW natural gas generator

Site (Name): Distribution

**Ministry of the Environment and Climate Change
Inspection Report****Type:** Other**Sub Type:** Other**Comments:**

The distribution system services an approximate population of 1071 connected residents. The First Engineer's Report estimated the distribution system at approximately 9.2 km. The system was comprised of asbestos concrete, polyvinyl chloride and cast iron piping in 100 mm, 150 mm and 200 mm diameters. In 2008, the municipality installed or replaced watermain on Clark St, Joseph St, Chisholm St, Edward St, South St, and a portion along Big Bend Ave. All replaced and new watermain are 250 mm polyvinyl chloride and have been brought into service.



Ministry of the Environment and Climate Change
Inspection Report

INSPECTION SUMMARY:

Introduction

- The primary focus of this inspection is to confirm compliance with Ministry of the Environment and Climate Change (MOECC) 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 28, 2017 Ministry of the Environment and Climate Change Water Inspector and Provincial Officer Vesna Alimovic conducted an inspection of Powassan Drinking Water System (DWS). The inspecting officer was accompanied with John Hemingway, Ontario Clean Water Agency (OCWA), Operator for the DWS and Scott Toebe, The Corporation of the Municipality of Powassan, Public Works System Operator.

The Corporation of the Municipality of Powassan is the owner of the system. The operating authority for the Powassan DWS is OCWA.

The 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 completed November 1, 2016 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 Systems Regulation O. Reg. 170/03
- Certification of Drinking Water Systems Operators Regulation O. Reg. 128/04
- Permit to Take Water (PTTW) No. 7346-8VFJKR, issued June 21, 2009
- Municipal Drinking Water Licence (MDWL) No. 266-101, Issue No. 2 dated April 18, 2016
- Drinking Water Works Permit (DWWP) No. 266-201, Issue No. 2 dated April 18, 2016
- Previous Ministry inspection report dated November 10, 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.

Visual inspection of the above-ground portion of the two production wells during the inspection showed no evidence of entry of surface water or other foreign materials around the wells.



Ministry of the Environment and Climate Change Inspection Report

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 16.2.8 of Schedule B of MDWL requires there is an inspection schedule for all wells associated with the drinking water system, including all protection wells, standby wells, test wells and monitoring wells. Condition 16.2.9 of the MDWL requires that there are well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components. Condition 16.2.10 requires that remedial action plans are developed for situations where an inspection indicates noncompliance with respect to regulatory requirements and/or risk to raw well water quality.

OCWA has developed an inspection schedule for production and test wells. Visual inspections of above-grade components of production wells and the security of the monitoring and test wells are conducted by the OCWA operators annually. Below grade components of wells are inspected every five years by a licensed well contractor. The Standard Operating Procedure for Powassan DWS contains procedures for above grade and below grade inspections of well components. In case of noncompliance with respect to regulatory requirements and/or risk to raw water quality, OCWA has established procedures for contacting and hiring qualified companies.

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.

Schedule A of DWWP lists two magnetic flowmeters, one at each of the raw water feed pipes. During the inspection it was observed that the flowmeters are installed as required by the DWWP.

- 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.

The MDWL specifies the rated capacity for the facility of 1313 m³/day. Average raw water flow for the inspection period for the facility (Well # 1 and Well # 2 combined) was 387.8 m³/day. The highest flow for the facility was recorded on December 6, 2016 with 736.1 m³/day, which amounts to 56% of the rated capacity in the MDWL.

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.

During the inspection, the water treatment processes were demonstrated to the inspecting officer by the operator. All equipment specified in the DWWP was present at the time of the inspection.

- 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.

Schedule B, Condition 4.5 requires that the owner must verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4. Condition 4.6 specifies that the verifications and documentation required in condition 4.5 shall be recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System", as published by the Ministry of the Environment and Climate Change, prior to the modified or replaced components being placed into service and retained for a period of ten (10) years by the owner.

On June 12, 2017 a lightning strike damaged the reservoir level sensor and communication link to the well house. The damaged level controller Milltronic Multiranger 200 was replaced with a newer unit Milltronic Multiranger 200 HMI and a Milltronic transducer was replaced with an identical unit on July 4, 2017, which was documented in two



Ministry of the Environment and Climate Change Inspection Report

Treatment Processes

Form 2 documents signed by the Corporation of the Municipality of Powassan's Clerk/Treasurer. Both forms are kept by the owner and operating authority and were made available at the inspecting Provincial Officer's request during the inspection.

- **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 1-3 of Schedule 1 of O. Reg. 170/03 requires the owner of a ground water drinking water system must ensure provision of water treatment equipment that 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 removal or inactivation of viruses by the time water leaves the point of entry treatment units or water enters the distribution system.

The MDWL no. 266-101, Issue No. 2 requires at least 99 per cent (2-log) removal/inactivation of viruses at the Powassan Drinking Water System Pumphouse. The process of chlorination including the contact time at the chlorine contact pipe is assigned 2+ log removal of viruses based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

MDWL specifies the following criteria for achievement of assigned log removal/inactivation credits for the process of chlorination at Powassan Drinking Water System:

1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario.
2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.

Based on the review of the available monitoring documents, the following has been determined:

1. Contact time is achieved at the 48 metre, 600 mm diameter serpentine contact pipe. Sampling and testing for free chlorine residual is carried out by a continuous chlorine analyzer located at the point where treated water exits the chlorine contact pipe.
2. The required CT value of 4.0 mg/L.minute is based on the following conditions: free chlorine residual at 0.45 mg/L, treated flow rate at 15.2 L/s, treated water pH from 6.0 to 9.5, treated water temperature at 5°C and baffle factor. Based on these conditions, a minimum of 0.45 mg/L of free chlorine residual at the monitoring point is required to achieve the primary disinfection log removal/inactivation credits.

The review of free chlorine monitoring trends and remote daily free chlorine residual summary sheets has shown that there were no instances when free chlorine concentration at the monitoring location was lower than 0.45 mg/L during the inspection period. During the inspection period, the average free chlorine residual concentrations at the monitoring location ranged from 1.33 to 2.41 mg/L with the lowest free residual chlorine concentration recorded on September 5, 2017 at 0.94 mg/L.

- **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.**

During the inspection period, there were no instances when free chlorine residual in the distribution system was



Ministry of the Environment and Climate Change Inspection Report

Treatment Processes

measured at concentration less than 0.05 mg/L. The lowest free chlorine residual during this period was measured on September 22, 2017 at 0.50 mg/L. The highest free chlorine concentration in the distribution was measured on November 7, 2016 at 2.3 mg/L.

Treatment Process Monitoring

- **Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.**

As required by the MDWL, sampling and testing for free chlorine residual is carried out at the end of the 49 metre, 600 mm diameter serpentine contact pipe, i.e. at the location where the intended CT has just been completed.

- **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.

According to the data provided, secondary disinfectant was measured as required during the inspection period. Seven free chlorine residual samples were collected weekly from the distribution system: four samples are collected on Mondays or Tuesdays and three samples are collected on Thursdays or Fridays. Samples were collected at least 48 hours after the last sample was collected for this purpose in the same or previous week.

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

Continuous monitoring test results are examined by the on-duty operator at Powassan Water Treatment Plant (WTP) and remotely via SCADA HMI at the Callander Water Treatment Plant.

Based on the review of the Remote Daily Free Chlorine Residual Summary Sheets and facility's logbook for the inspection period, it appears that the monitoring test results were reviewed within 72 hours of the test.

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg. 170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

Free chlorine residual concentration required to achieve primary disinfection for the worst conditions at Powassan WTP is 0.45 mg/l. Continuous chlorine analyzer is equipped with an alarm that signals when free chlorine concentration reaches 0.8 mg/L. The alarm is enunciated at the pumphouse as well as the security company contracted by the operating authority. The security company contacts the overall responsible operator by phone in case of all alarms from Powassan DWS. In case of a low chlorine alarm, i.e. free chlorine residual at 0.8 mg/L, the active low lift pump automatically shuts off disabling the flow of raw water towards the chlorine contact pipe. Maximum alarm setting for free chlorine residual is set at 4.0 mg/L for high free chlorine concentration and 4.5 mg/L for high high free chlorine residual concentration. Delay of all free chlorine residual alarm set points is 10 seconds.

- **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.**



Ministry of the Environment and Climate Change Inspection Report

Treatment Process Monitoring

- All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.

The online chlorine analyzer is inspected and verified against a handheld chlorine analyzer monthly and calibrated annually. The handheld analyzer is also calibrated annually.

Operations Manuals

- The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.

Operations and maintenance materials kept on site contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the subsystem.

- 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.

Review of the operations and maintenance manuals during the inspection showed that the requirements of Condition 16.0 of Schedule B of MDWL were met. Components and procedures listed in the Condition 16.2 were found in the following binders: Powassan Ground Water Well Supply Maintenance Manual Volume 1 and 2, Powassan Water Supply Distribution and Storage System Upgrades Volumes I to III, OCWA Standard Operating Procedures and Powassan Water System Operations Manual. Required information is also found in treatment equipment manuals and in OCWA internal files.

It is recommended that a review of documents found at the pumphouse be performed and outdated information is removed.

Security

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

The Powassan DWS pumphouse is kept locked with intruder alarm installed on the door. The intruder alarm was tested in June and August 2017. During the inspection, no potential for intruder access was observed in the pumphouse. Operators visit the facility two to four times a week. Powassan DWS reservoir is in an area with gated access. The rechlorination building next to the reservoir is kept locked and is equipped with intruder alarm.

Door locks on the well house were repaired on November 29, 2016. On December 28, 2017 an on-call operator responded to a notification about an intruder alarm signal from contracted security agency. When the operator arrived on site, the front door was wide open, however the inspection of the facility showed all looked fine. This was an isolated incident, however it should be taken seriously. It is recommended that testing of intruder alarm is performed more frequently and a record of testing is made.

Certification and Training

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

For the Powassan WTP and Distribution System, the on-call operator is designated as the overall responsible operator (ORO). The ORO is alternated on a weekly basis between operators Darren Aljoe and Tim Fraser as per the on-call schedule, each serving as backup ORO to each other. Alternate operators that may function as designated ORO while on call for this facility are Don Michaud, Gerry Duguay and John Hemingway.

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

The operator attending the subsystem and having the required subsystem operator certificate is designated as an operator in charge.



Ministry of the Environment and Climate Change Inspection Report

Certification and Training

- 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 nine 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).

Review of lab results from the inspection period has shown that samples from the distribution were collected weekly and tested for *E. coli* and total coliforms, resulting in 12 to 15 monthly samples. Every week, a distribution sample was tested for HPC with the exception of week March 19 to March 25, 2017, when due to laboratory accident no result was obtained for HPC from the submitted sample, and week from July 23 to July 29, 2017 when 2 distribution samples were tested for HPC.

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

Section 10-3 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 a water sample is taken at least once every week and tested for, (a) *Escherichia coli*; (b) total coliforms; and (c) general bacteria population expressed as colony counts on a heterotrophic plate count.

Review of lab results during the inspection period has shown that samples of treated water are collected at the pumphouse weekly and tested for *E. coli*, total coliforms and general bacteria population. In the week from March 19 to March 25, 2017, due to laboratory accident no result was obtained for HPC from the sample collected on March 20. A supplementary sample was collected on March 23, 2017 and tested for *E. coli*, total coliforms and general bacteria population.

Note: It was noted that the exact time of sampling was not recorded for a raw water sample from Well # 2 on September 25, 2017, which was collected during sampling of treated water. This appears to be an isolated incident.

- 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).

Subsection 6-1.1(6) of Schedule 6 of O. Reg. 170/03 specifies that if this Regulation requires at least one water sample to be taken every 36 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system must ensure that at least one sample that is taken during a 36-month period for the purpose of being tested for that parameter is taken not more than 60 days before or after the third anniversary of the day a sample was taken for that purpose in the previous 36-month period.



Ministry of the Environment and Climate Change Inspection Report

Water Quality Monitoring

Sampling for the purpose of testing for Schedule 23 parameters was conducted on January 26, 2015.

Note: Required sampling period for Schedule 23 parameters is from November 27 to no later than March 26, 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).

Subsection 6-1.1(6) of Schedule 6 of O. Reg. 170/03 specifies that if this Regulation requires at least one water sample to be taken every 36 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system must ensure that at least one sample that is taken during a 36-month period for the purpose of being tested for that parameter is taken not more than 60 days before or after the third anniversary of the day a sample was taken for that purpose in the previous 36-month period.

Sampling for the purpose of testing for Schedule 24 parameters was conducted on January 26, 2015.

Note: Required sampling period for Schedule 24 parameters is from November 27 to no later than March 26, 2018.

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

Effective January 1, 2017, 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 (HAAs). 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. Effective January 1, 2020, a standard for HAAs will be introduced. The standard will be 0.08 mg/L (80 µg/L) and will be expressed as a running annual average (RAA) of quarterly results.

During the inspection period, samples were collected and tested for HAAs on January 26, 2017, April 24, 2017, July 12, 2017 and October 19, 2017. The test results of HAAs in all samples were below the laboratory's detectable limit of 5.3 µg/L.

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

O. Reg. 169/03 sets the standard for THMs at 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.

During the inspection period, samples were collected and tested for THMs on the following dates and with following results: January 26, 2017 at 3 µg/L, April 24, 2017 at 2 µg/L, July 12, 2017 at 4.2 µg/L, and October 19, 2017 at 4.6

**Ministry of the Environment and Climate Change
Inspection Report****Water Quality Monitoring**

µg/L. Current RAA for THMs is 3.5 µg/L.

- **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.

During the inspection period, samples of treated water were collected and tested for nitrate and nitrite on January 26, 2017, April 24, 2017, July 12, 2017 and October 19, 2017.

- **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 sample was collected and tested for sodium on February 27, 2017.

- **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.

According to the information provided, the most recent sampling for fluoride was done on January 20, 2014.

- **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

- **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.**

Review of the facility's logbook has shown that operators responded in a timely manner to triggered alarms and took appropriate actions to address the reasons for alarm.

Other Inspection Findings



**Ministry of the Environment and Climate Change
Inspection Report**

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.

Not Applicable



**Ministry of the Environment and Climate Change
Inspection Report**

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



**Ministry of the Environment and Climate Change
Inspection Report**

SIGNATURES

Inspected By:

Vesna Alimpic

Signature: (Provincial Officer)

Reviewed & Approved By:

Sherry Ilersich

Signature: (Supervisor)

Review & Approval Date:

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.