

Ministry of the Environment,
Conservation and Parks

Drinking Water and Environmental
Compliance Division, Eastern Region
Cornwall Area Office

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Ministère de l'Environnement, de la Protection de
la nature et des Parcs

Division de la conformité en matière d'eau potable
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March 4, 2022

Robin Paquette
Chief Administrator Officer
The Corporation of the Town of Arnprior
105 Elgin St. West
Arnprior, ON K7S 0A8

Dear: R. Paquette,

Re: **2021-22 Inspection Report for the Arnprior Drinking Water System**

Please find enclosed a copy of the final inspection report for the Arnprior Drinking Water System.

Section 19 of the Safe Drinking Water Act (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. These steps could include asking for a copy of this inspection report and a 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 Council" found under on the Ontario website at <https://www.ontario.ca/page/taking-care-your-drinking-water-guide-members-municipal-councils>

The format of the enclosed report has been updated, and you will note that the non-compliance and/or non-conformance items are now detailed at the beginning of the report and if found, will cite due dates for the submission of information, procedures or plans to my attention. All questions that were assessed are included in the Inspection Details Section.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation & Enforcement (II&E) Secretariat and advice of internal/external risk experts. The Inspection Rating Record (IRR), provides the Ministry, the system owner and the local Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. IRR ratings are published (for the previous year) in the ministry's Chief Drinking Water Inspector's Annual Report.

Please note that due to a change in IT systems, the IRR cannot be generated at the same time as the inspection report. The IRR will be sent separately and prior to any public release (typically within one to two months of the completion of the inspection).

If you have any questions or concerns regarding the rating, please contact Charlie Primeau, Water Compliance Supervisor, at (613) 277-3727.

Thank you for the assistance during the inspection. Please do not hesitate to contact me if you have any questions or concerns about the attached report.

Sincerely,



Jean-François Durocher
Bilingual Water Inspector
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks (MECP)
Cornwall Area Office
Phone: 613-363-5149
E-mail: jean-francois.durocher@ontario.ca

cc: Scott Matthews, Town of Arnprior – Waterworks Supervisor
John Steckly, Town of Arnprior – Operations General Manager
Deanna Nicholson, Town of Arnprior – Environmental Engineering Officer
Dan Tantalo, Renfrew County & District Health Unit (RCDHU) – Environmental Health
Randy McLaren, Ministry of Natural Resources and Forestry (MNRF) – District Manager (Pembroke District)
Charlie Primeau, Ministry of Environment, Conservation and Parks (MECP) –Water Inspections Programs Supervisor, Cornwall/Ottawa SDWB

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DRINKING WATER INSPECTION REPORT 01- 36

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ARNPRIOR DRINKING WATER SYSTEM
71 JAMES ST, ARNPRIOR, ON, K7S 1E1
Inspection Report

System Number: 220000932
Inspection Start Date: 02/01/2022
Inspection End Date: 03/03/2022
Inspected By: Jean-Francois Durocher
Badge #: 1440

A rectangular box containing a handwritten signature in black ink, which appears to be "J. F. Durocher".

(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

Ministry Program: Regulated Activity: DRINKING WATER : DW Municipal Residential

Question ID	MRDW1001000	
Question	Question Type	Legislative Requirement
What was the scope of this inspection?	Information	Not Applicable
Observation		
<p>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 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.</p> <p>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.</p> <p>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.</p> <p>A physical inspection was conducted at the Arnprior Drinking Water System (DWS) on Wednesday February 9, 2022 by Water Inspector Jean-François (J-F) Durocher. J-F Durocher was accompanied by Waterworks Supervisor – Scott Matthews who is an employee of The Corporation of the Town of Arnprior.</p> <p>Paperwork and logbooks associated to DWS operations were reviewed for the period between February 1, 2021 to January 31, 2022. The inspector observed, analyzed and photographed each part of the treatment/disinfection process from the raw water source (Madawaska River) to the fully disinfected treated water. The inspector also visited the 2,727 m³ elevated water storage tank.</p>		

Question ID	MRDW1000000	
Question	Question Type	Legislative Requirement
Does this drinking water system provide primary disinfection?	Information	Not Applicable
Observation		
This Drinking Water System provides for both primary and secondary disinfection and distribution of water.		

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Question ID	MRDW1010000	
Question	Question Type	Legislative Requirement
Are trends in source water quality being monitored?	BMP	Not Applicable
Observation		
Trends in source water quality were being monitored.		
Source water quality parameters such as pH, temperature, bacteriological content, colour, turbidity and alkalinity are monitored and trended to assist in the treatment process.		

Question ID	MRDW1012000	
Question	Question Type	Legislative Requirement
Does the owner have a harmful algal bloom monitoring plan in place that meets the requirements of the MDWL?	Legislative	SDWA 31 (1)
Observation		
The owner had a harmful algal bloom monitoring plan in place.		
The Arnprior Municipal Drinking Water Licence (MDWL) conditions relating to harmful algal blooms are found in Schedule C Section 6.0 of MDWL 170-101 Issue No. 7.		
The inspector analyzed Arnprior's DWS Harmful Algal Bloom (HAB) plan and it contained the following details relating to:		
<ol style="list-style-type: none"> 1) visual monitoring for HABs at or near the drinking water system intake, 2) details relating to visual monitoring of shoreline for drinking water systems where the proximity of the intake may be of concern; 3) details relating to reporting the observed or suspected HAB; 4) a sampling plan, including the identification of sample location(s) and frequencies and triggers that may increase the sampling frequency, and 5) up-to-date records documenting staff training on the HAB monitoring, reporting, and sampling procedures. 		
The procedure also gives operators instructions on what to do if a bloom is confirmed and the presence of microcystin-LR (greater than 1.5 µg/L in treated water). No issues identified.		

Question ID	MRDW1014000	
Question	Question Type	Legislative Requirement
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
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.		

Condition 2.1 of Municipal Drinking Water Licence (MDWL) No. 170-101 Issue No. 7 issued March 31, 2021 requires that continuous flow measurement and recording shall be undertaken for:

2.1.1 The flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system.

2.1.2 The flow rate and daily volume of water that flows into the treatment subsystem.

This condition was met through the use of two raw water flowmeters and a treated water flowmeter. The raw water flowmeters monitor the water flowing on the low lift discharge header to the treatment trains and a treated water flowmeter monitoring the treated water as it enters the distribution system.

Raw water flow data was reviewed for the period between February 1, 2021 to January 31, 2022, and found to be in order, averaging 4,621 m³/day [45% of Permit To Take Water (PTTW) 10,340 m³/day limit]. The highest raw water flow was on July 6, 2021 with a flow rate of 7,227 m³/day (70% of allowable 10,340 m³/day limit).

PTTW No. 4143-8ZDLMJ was issued to The Corporation of the Town of Arnprior on October 25, 2012. The PTTW limits daily water takings from the Madawaska River to 10,340,000 Litres/Day [10,340 cubic meters a day (m³/d)]. The PTTW expires on October 23, 2022.

Question ID	MRDW1015000	
Question	Question Type	Legislative Requirement
Are the flow measuring devices calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
The flow measuring devices were calibrated or verified in accordance with the requirements of the MDWL issued under Part V of the SWDA.		
Flowmeters are being verified and calibrated in accordance with requirements.		
All flowmeters within the Arnprior DWS were last calibrated on October 5, 2021 by a hired professional contractor who specializes in instrumentation calibrations.		

Question ID	MRDW1016000	
Question	Question Type	Legislative Requirement
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
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.		

Condition 1.1 of Schedule C of MDWL No. 170-101 Issue No. 7 requires the owner to ensure the system is operated such that the maximum daily volume of water that flows from the treatment subsystem to the distribution system is not to exceed the rated capacity of 10,340 m³/day.

The Arnprior WTP is averaging 39% of its total daily maximum production. During the inspection review period the average volume of water that was disinfected from the WTP to the distribution system was 4,069 m³/day. Arnprior WTP was averaging 4,022 m³/day during the last (2020-21) inspection period.

The highest monthly volume of water produced was in June 2021 with an average flow rate of 4,527 m³/day for the month and the highest single day treated water flow was July 6, 2021 (6,158 m³/day).

Question ID	MRDW1017000	
Question	Question Type	Legislative Requirement
Were appropriate records of flows and any capacity exceedances made in accordance with the MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
Appropriate records of flows and any capacity exceedances were made in accordance with the Municipal Drinking Water Licence issued under Part V of the SDWA.		

Question ID	MRDW1013000	
Question	Question Type	Legislative Requirement
Is the owner in compliance with all conditions of the PTTW?	Legislative	OWRA 34 (3)
Observation		
The owner was in compliance with all conditions of the PTTW.		
Permit To Take Water (PTTW) No. 4143-8ZDLMJ was issued to the The Corporation of the Town of Arnprior on Ocotber 25, 2012 and expires on October 23, 2022.		
The PTTW limits daily water takings from the Madawaska River to 10,340,000 Litres/Day [10,340 cubic meters a day (m ³ /d)].		
All water takings from the source were below the maximum limit. The highest volume taken from the Madawaska River took place in on July 6, 2021 with a total daily volume of 7,227 m ³ /day (70% of allowable 10,340 m ³ /day limit).		

Question ID	MRDW1030000	
Question	Question Type	Legislative Requirement

Is primary disinfection chlorine monitoring being conducted at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?	Legislative	SDWA O. Reg. 170/03 7-2 (1), SDWA O. Reg. 170/03 7-2 (2)
Observation		
<p>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.</p> <p>Chlorine monitoring was being conducted at or near the location where the intended CT has just been achieved, directly downstream of clearwell but prior to the high lift pumping gallery. Primary disinfection is being monitored by approved chlorine monitoring instrument.</p>		

Question ID	MRDW1038000	
Question	Question Type	Legislative Requirement
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements 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?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4
Observation		
<p>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.</p> <p>The Table in Schedule 6 of O.Reg 170/03 states that free chlorine residual and total chlorine residual measured for the purpose of determining combined chlorine residual required to achieve primary disinfection be recorded at a minimum every five minutes and that a minimum alarm set point be 0.1 milligrams per litre less than the concentration of free chlorine residual that is required to achieve primary disinfection.</p> <p>The Table in Schedule 6 does not state a maximum alarm standard for chlorine residual to achieve primary disinfection.</p> <p>The SCADA system records total and free chlorine residual continuously and the alarm for low free chlorine residual is set at 1.30 mg/L. Operators try to achieve a free chlorine residual of 1.60 mg/L or higher in treated water leaving the clearwell.</p> <p>The Table in Schedule 6 of O.Reg 170/03 states that turbidity be tested and recorded at a minimum frequency of every 15 minutes and that a maximum alarm point of 1.0 NTU be set. The Table in Schedule 6 does not state a minimum alarm standard for turbidity.</p> <p>The SCADA system records turbidity continuously and there is a high turbidity alarm set point of 0.3 NTU at the Arnprior WTP. No concerns were identified.</p>		

Question ID	MRDW1036000	
Question	Question Type	Legislative Requirement
Where continuous monitoring equipment is not used for chlorine residual analysis, are samples tested using an acceptable portable device?	Legislative	SDWA O. Reg. 170/03 6-7 (1)
Observation		
Samples for chlorine residual analysis were tested using an acceptable portable device.		

Question ID	MRDW1037000	
Question	Question Type	Legislative Requirement
Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10,SDWA O. Reg. 170/03 6-5 (1.1)
Observation		
<p>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.</p> <p>The continuous monitoring equipment required by Ontario Regulation 170/03 was equipped with the following alarm set points:</p> <ul style="list-style-type: none"> -the free chlorine residual analyzer monitoring water leaving the clearwell has a low-level alarm of 1.30 mg/L, and a high-level alarm of 3.50 mg/L. -the total chlorine residual analyzer monitoring water leaving the WTP and entering the distribution system has a low-level alarm of 0.75 mg/L, and a high-level alarm of 3.1 mg/L. -the filter effluent turbidimeters have high level alarms set at 0.3 Nephelometric Turbidity Units (NTU). When effluent turbidity reaches 0.3 NTU that filter's effluent line is closed with valve (automatically). An alarm is also triggered when filter effluent turbidity reaches 0.3 NTU. <p>The on-call operator is notified 24/7 whenever an alarm is triggered. The on-call operator then would contact the OIC if during working hours come on-site and investigate if after hours.</p>		

Question ID	MRDW1035000	
Question	Question Type	Legislative Requirement

Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10
Observation		
<p>Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.</p> <p>Facility Logbooks are maintained by WTP staff for the Arnprior WTP and the Arnprior Distribution System. These logbooks were reviewed, and it was noted that Operators were reviewing the continuous monitoring data, typically within 24 hours of the test. The SCADA system generates a daily report which is entered in the "Monthly Report" Excel spreadsheet. It was noted the operators examine data as part of their morning routine inspection.</p> <p>The Arnprior WTP has an operator on site five-days a week (Mon-Fri) from 0800 to 1600 and a designated on-call person is available after hours.</p>		

Question ID	MRDW1040000	
Question	Question Type	Legislative Requirement
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4,SDWA O. Reg. 170/03 6-5 (1)5-10
Observation		
<p>All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.</p> <p>It was indicated at the time of the inspection that all continuous analyzers are calibrated, maintained, and operated in accordance with the manufacturer's instructions and in accordance to Schedule 6-5 of Ontario Regulation 170/03.</p> <p>Arnprior DWS staff utilize a management/maintenance schedule (Preventive Maintenance 2021-22) to assist and track maintenance/calibration activities. Calibration records and work order summaries were provided by Arnprior staff and summarized below:</p> <ul style="list-style-type: none"> - All flowmeters were calibrated on monthly basis. A third-party contractor provided the owners a Certificate of Instrument Performance on October 5, 2021, after he calibrated the flowmeters using specialized equipment. The third-party contractor is hired to calibrate the flowmeters annually. - The continuous monitoring equipment that monitors chlorine was calibrated monthly. - All turbidity meters were calibrated on monthly basis. 		

- Laboratory Turbidimeter, spectrophotometers, pH meters, dissolved oxygen meters, and colorimeters were calibrated by a third-party contractor on February 10, 2021.

Question ID MRDW1108000		
Question	Question Type	Legislative Requirement
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by Regulation 170, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?	Legislative	SDWA O. Reg. 170/03 6-5 (1) 1-4, SDWA O. Reg. 170/03 6-5 (1) 5-10, SDWA O. Reg. 170/03 6-5 (1.1)
Observation		
<p>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.</p> <p>Section 6-5 of Schedule 6, Ontario Regulation 170/03 requires that continuous monitoring equipment be designed and operated in accordance with the standards described in subsection (1.1).</p> <p>If the continuous monitoring equipment does not have a feature that ensures that no water is directed to users in the event of a prescribed alarm, then in the event of an alarm a qualified person must be promptly dispatched to the plant and must arrive as soon as possible.</p> <p>The demonstrated response time for triggered alarms is acceptable. No concerns were identified.</p>		

Question ID MRDW1033000		
Question	Question Type	Legislative Requirement
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?	Legislative	SDWA O. Reg. 170/03 7-2 (3), SDWA O. Reg. 170/03 7-2 (4)
Observation		
<p>The secondary disinfectant residual was measured as required for the distribution system.</p> <p>Subsection 7-2 (3) of Schedule 7 of Ontario Regulation 170/03 requires that the owner of a large municipal residential system that provides secondary disinfection and the operating authority for the system shall ensure that at least seven distribution samples are taken each week and are tested immediately for, free chlorine residual, or combined chlorine residual, if the system provides chloramination.</p> <p>The required sampling had been conducted in accordance with the rules prescribed by Subsection</p>		

7-2(4) of Schedule 7 of Ontario Regulation 170/03. The rules stipulate the following:

- 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 on the day noted above.
- When more than one sample is taken on the same day of the week under paragraph noted above, each sample must be taken from a different location.

The secondary disinfectant residual in the distribution system is measured as per Subsection 7-2(4) of Schedule 7 of Ontario Regulation 170/03. No concerns were identified.

Question ID	MRDW1031000	
Question	Question Type	Legislative Requirement
Are operators aware of the operational criteria necessary to achieve primary disinfection within the drinking water system?	BMP	Not Applicable
Observation		
Operators were aware of the operational criteria necessary to achieve primary disinfection within the drinking water system.		

Question ID	MRDW1032000	
Question	Question Type	Legislative Requirement
If the drinking water system obtains water from a surface water source and provides filtration, is continuous monitoring of each filter effluent line being performed for turbidity?	Legislative	SDWA O. Reg. 170/03 7-3 (2)
Observation		
Continuous monitoring of each filter effluent line was being performed for turbidity.		

Question ID	MRDW1018000	
Question	Question Type	Legislative Requirement
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?	Legislative	SDWA 31 (1)
Observation		
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.		

At the time of the inspection, The Town of Arnprior was operating the Drinking Water System (DWS) under Drinking Water Works Permit (DWWP) No. 170-201 Issue No. 3 which was issued on March 31, 2021. The facility also operated under Municipal Drinking Water Licence (MDWL) No. 170-101 Issue No. 7 which was issued March 31, 2021.

The equipment as identified on the above noted certificates was reviewed at the time of the inspection and found to be in order.

Question ID	MRDW1019000	
Question	Question Type	Legislative Requirement
Does the owner have evidence that, when required during the inspection period, all Director Notifications under Condition 2.4 of Schedule B of the DWWP were made to the Ministry?	Legislative	SDWA 31 (1)
Observation		
The owner had evidence that all required Director Notifications under Condition 2.4 of Schedule B of the Drinking Water Works Permit were made during the inspection period.		

Question ID	MRDW1020000	
Question	Question Type	Legislative Requirement
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 1 documents were prepared in accordance with their Drinking Water Works Permit?	Legislative	SDWA 31 (1)
Observation		
The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.		
A Form 1 was prepared for the following watermain projects:		
The Marshall's Bay Meadows subdivision and all the new watermains in that newly developed area of Arnprior.		
Watermain works associated with the development of a new apartment building complex (Hyorr Sawmill Flats) at the south-west corner of Madawaska Blvd. and Jack Cres. in the Town of Arnprior		
Removal of existing 150 mm ductile iron watermain with new 200 mm polyvinylchloride (PVC) watermain along Alicia Street from Division Street to McLachlin Street.		

Question ID	MRDW1021000	
Question	Question	Legislative

	Type	Requirement
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?	Legislative	SDWA 31 (1)
Observation		
<p>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.</p> <p>A Form 2 form was prepared for the following modifications:</p> <p>Replacement of the differential pressure sensor on Filter #1 to a newer model of the same manufacturer (Endress & Hauser). Unit was installed and calibrated by a professional offsite contractor.</p>		

Question ID	MRDW1023000		
Question	Question Type	Legislative Requirement	
Do records indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?	Legislative	SDWA O. Reg. 170/03 1-2 (2)	
Observation			
<p>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.</p> <p>Subsection 1-2(2) of Schedule 1 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system ensure the following:</p> <ol style="list-style-type: none"> 1. The water treatment equipment is in operation whenever water is being supplied; 2. The water treatment equipment is operated in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and that 3. The water treatment equipment required by section 1-3 or 1-4 is operated in a manner that achieves the design capabilities it is required to have under that section. <p>The Arnprior WTP is a Conventional Filtration System as defined by DWWP No. 170-201 Issue No. 3 and MDWL No. 170-101 Issue No. 7.</p> <p>The Arnprior WTP is designed so that credits for 2-log removal/inactivation of Cryptosporidium oocysts, 3-log removal/inactivation of Giardia cysts and 4-log removal/inactivation of viruses are achieved through the use of chlorine disinfection.</p> <p>Subsection 1-4(a)[ii] of Schedule 1 of Ontario Regulation 170/03 requires that water treatment equipment is designed to be capable of achieving, at all times, primary disinfection in accordance</p>			

with the Ministry's Procedure for Disinfection of Drinking Water in Ontario, including at least 99 per cent (2 log) removal or inactivation of *Cryptosporidium* oocysts, at least 99.9 per cent (3 log) removal or inactivation of *Giardia* cysts and at least 99.99 per cent (4 log) removal or inactivation of viruses.

To receive these removal credits the conventional filtration system must meet the following operating criteria:

- chemical coagulant must be used at all times when the treatment plant is operational,
- chemical dosage must be monitored and adjusted in response to variations in raw water quality,
- effective backwash procedures must be maintained,
- the turbidity from each filter must be continuously monitored, and
- the turbidity of each filter effluent stream must be measured to be less than or equal to 0.3 NTU in 95% of the measurements each month.

The available information indicates that the Arnprior WTP is operating in accordance with these requirements.

A review of the filter effluent turbidity data provided by WTP staff (dated February 2021 to January 2022), indicates that the filter effluent met the performance measure of 0.3 NTU or less 95% of the time for each individual month.

To ensure CT is achieved, the plant is operated to achieve a minimum free chlorine residual of 1.30 mg/L for water entering the clear well. A review of the available data indicated that the minimum free chlorine residual recorded for primary disinfection ranged from 1.43 mg/L to 2.19 mg/L.

To further confirm that the CT was consistently achieved, a CT calculation was completed based on worst case conditions (i.e. min. chlorine residual, max. flow, low temperature, max. pH) reported since the previous inspection. The calculation confirmed that the plant was capable of achieving the required CT in all operating conditions reported since the last inspection. No issues identified.

Question ID	MRDW1024000	
Question	Question Type	Legislative Requirement
Do records confirm 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?	Legislative	SDWA O. Reg. 170/03 1-2 (2)
Observation		
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.		
Section 1-2(2)4 of Schedule 1 of Ontario Regulation 170/03 states that if the drinking water		

system's water treatment equipment provides chlorination or chloramination for secondary disinfection, the equipment is operated so that, at all times and at all locations within the distribution system,

- i. The free chlorine residual is never less than 0.05 mg/L, if the drinking water system provides chlorination and does not provide chloramination, or
- ii. The combined chlorine residual is never less than 0.25 mg/L, if the drinking water system provides chloramination.

The maintenance of a disinfectant residual in the distribution system (secondary disinfection) is intended to maintain (or introduce and maintain) a persistent disinfectant residual to protect the water from microbiological re-contamination, reduce bacterial re-growth, control biofilm formation, and serve as an indicator of distribution system integrity (loss of disinfectant residual indicating that the system integrity has been compromised). Only chlorine, chlorine dioxide and monochloramine provide a persistent disinfectant residual and can be used for the maintenance of a residual in the distribution system.

Rapid decay of a disinfectant residual may occur because of a number of other causes such as heavy encrustation or sediment accumulation and biofilm activity and may require investigation and specific corrective action such as engineered flow velocity increases and swabbing or pigging/lining and/or main replacement.

Records provided by the Town of Arnprior were reviewed for the inspection period and found to be in order. The lowest combined chlorine residual which was measured in the distribution system was on September 26, 2021 with a result of 0.64 mg/L.

NOTE:

Process analyzers can be used within a treatment plant (e.g. where analyzers may exist as part of the treatment process control but are not used to measure residual chlorine at the end of contact time) as well as within a distribution system. This equipment does not have to meet the requirements specified in Schedule 6 of the Regulation. However, if a process analyzer indicates that inadequately disinfected water is being directed to the users of the system, the observation must be reported under Schedule 16, section 16-4.

Example situations may include:

In a re-chlorination facility (chlorine booster station), there can be one or more analyzers; one on the entry line (upstream) measuring residual levels of the incoming water and the second one on the exit line (downstream). The chlorine dose is adjusted based on the upstream analyzer reading. If an online analyzer located on the downstream side displays a value less than 0.05 mg/L for 15 minutes or more, this could mean that improperly treated water is being directed to the users of the system.

If it is determined that the low readout is not due to mitigating circumstances such as a calibration error, broken probe, electrical power surge, etc., the observation should be reported under section 16-4, Schedule 16.

Question ID	MRDW1025000	
Question	Question Type	Legislative Requirement
Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?	Legislative	SDWA 31 (1)
Observation		
<p>All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit.</p> <p>Condition 2.3 of Schedule B of DWWP No. 177-202 Issue No. 2 which was issued on February 8, 2016 states that all parts of the drinking water system in contact with drinking water which are:</p> <p>2.3.1 Added, modified, replaced, extended; or</p> <p>2.3.2 Taken out of service for inspection, repair or other activities that may lead to contamination, shall 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:</p> <p>a) The ministry's Watermain Disinfection Procedure, effective January 15, 2017;</p> <p>b) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;</p> <p>c) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and</p> <p>d) AWWA C654 – Standard for Disinfection of Wells.</p> <p>It was indicated by Arnprior WTP staff at the time of the inspection, that a recently updated Standard Operating Procedure (SOP) was created specifically to ensure the Watermain Disinfection Procedure is properly and adequately followed and adhered to by Arnprior DWS staff. No concerns identified.</p>		

Question ID	MRDW1027000	
Question	Question Type	Legislative Requirement
Does the owner have evidence indicating that all chemicals and materials which come in contact with water within the drinking water system have met all applicable AWWA and ANSI standards in accordance with the DWWP and MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
<p>The owner had evidence indicating that all chemicals and materials that come in contact with water within the drinking water system met the AWWA and ANSI standards in accordance with the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.</p>		

Question ID	MRDW1028000	
Question	Question	Legislative

	Type	Requirement
Are up-to-date plans for the drinking water system kept in place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system in accordance with the DWWP and MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
Up-to-date plans for the drinking water system were kept in a place, or made available in such a manner, that they could be readily viewed by all persons responsible for all or part of the operation of the drinking water system in accordance with the DWWP and MDWL issued under Part V of the SDWA.		

Question ID	MRDW1043000	
Question	Question Type	Legislative Requirement
Are the process wastewater and residual solids/sludges being treated, handled and disposed of in accordance with the design requirements approved under the Drinking Water Works Permit and the Municipal Drinking Water Licence?	Legislative	SDWA 31 (1)
Observation		
The process wastewater and residual solids/sludges were treated, handled and disposed of in accordance with the design requirements approved under the Drinking Water Works Permit and the Municipal Drinking Water Licence.		

Question ID	MRDW1044000	
Question	Question Type	Legislative Requirement
Does the process wastewater discharge monitoring program and discharge quality comply with requirements established in the MDWL issued under Part V of the SDWA?	Legislative	SDWA 31 (1)
Observation		
<p>The process wastewater discharge monitoring program and discharge quality complied with requirements established in the Municipal Drinking Water Licence Issued under Part V of the SDWA.</p> <p>Schedule C, Table 7 of the MDWL requires a composite sample to be taken monthly from the point of discharge from the backwash wastewater facilities for Total Suspended Solids (TSS) with a reportable maximum concentration of 25 mg/L and a reportable annual average concentration of 25 mg/L.</p> <p>All above samples were taken at the required frequencies. The maximum TSS concentration was 20.0 mg/L and the annual average TSS concentration was 4.6 mg/L for TSS samples taken from the backwash wastewater facilities.</p>		

Question ID	MRDW1045000	
Question	Question Type	Legislative Requirement
Has the owner updated the document describing the distribution components within 12 months of completion of alterations to the system?	Legislative	SDWA 31 (1)
Observation		
<p>The owner had up-to-date documents describing the distribution components as required.</p> <p>The documents referenced in DWWP Table 1: Watermains of Schedule A are required to be updated within 12 months of the addition, modification, replacement or extension of watermains. The Permit demonstrates that the file was last updated in October 2020, but while conducting the inspection, the inspector confirmed that up to date schematics/maps are available for staff.</p>		

Question ID	MRDW1046000	
Question	Question Type	Legislative Requirement
Is there a backflow prevention program, policy and/or bylaw in place that addresses cross connections and connections to high hazard facilities?	BMP	Not Applicable
Observation		
<p>There is a backflow prevention program, policy and/or bylaw in place.</p> <p>Town of Arnprior By-Law No. 6802-18 states that all service connection need to comply with the Building Code of Ontario, and also addressing that no cross connections to other water sources are allowed.</p>		

Question ID	MRDW1047000	
Question	Question Type	Legislative Requirement
Does the owner have a program or maintain a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system?	BMP	Not Applicable
Observation		
<p>The owner had a program or maintained a schedule for routine cleanout, inspection and maintenance of reservoirs and elevated storage tanks within the distribution system.</p> <p>The water reservoirs are cleaned out and thoroughly inspected every five years. The water tower was cleaned out, inspected, and painted in the summer months of 2021.</p>		

Question ID	MRDW1048000	
Question	Question Type	Legislative Requirement

Has the owner implemented a program for the flushing of watermains as per industry standards?	BMP	Not Applicable
Observation		
The owner had implemented a program for the flushing of watermains as per industry standards.		
The owner has implemented a program to flush the watermains on a bi-annual schedule. Each autumn and spring season, the town will flush all watermains, exercise valves, inspect/operate hydrants and winterize the hydrants (fall).		

Question ID	MRDW1049000	
Question	Question Type	Legislative Requirement
Do records confirm that disinfectant residuals are routinely checked at the extremities and dead ends of the distribution system?	BMP	Not Applicable
Observation		
Records confirmed that disinfectant residuals were routinely checked at the extremities and "dead ends" of the distribution system.		

Question ID	MRDW1050000	
Question	Question Type	Legislative Requirement
Is there a program in place for inspecting and exercising valves?	BMP	Not Applicable
Observation		
A program was in place for inspecting and exercising valves.		

Question ID	MRDW1051000	
Question	Question Type	Legislative Requirement
Is there a program in place for inspecting and operating hydrants?	BMP	Not Applicable
Observation		
There was a program in place for inspecting and operating hydrants.		

Question ID	MRDW1052000	
Question	Question Type	Legislative Requirement
Is there a by-law or policy in place limiting access to hydrants?	BMP	Not Applicable
Observation		
There was a by-law or policy in place limiting access to hydrants.		

Town of Arnprior By-Law No. 6802-18 states that no person shall in any way interfere with any hydrant, valve, curb-stop, or other waterworks appliances. Only authorized users may operate the hydrant.

Question ID	MRDW1053000	
Question	Question Type	Legislative Requirement
Is the Owner able to maintain proper pressures in the distribution system and is pressure monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate?	BMP	Not Applicable
Observation		
<p>The owner was able to maintain proper pressures in the distribution system and pressure was monitored to alert the operator of conditions which may lead to loss of pressure below the value under which the system is designed to operate.</p> <p>The Arnprior WTP is outfitted with pressure reading equipment throughout the distribution which is tracked on the Supervisory Control And Data Acquisition (SCADA) system. If the pressure drops below the value under which the system is designed to operate an alarm will be engaged and the operator will be made aware.</p>		

Question ID	MRDW1058000	
Question	Question Type	Legislative Requirement
Do operators and maintenance personnel have ready access to operations and maintenance manuals?	Legislative	SDWA O. Reg. 128/04 28
Observation		
<p>Operators and maintenance personnel had ready access to operations and maintenance manuals.</p> <p>Operations and maintenance manual(s) for the WTP were reviewed at the time of the inspection and found to be in order, containing plans, drawings, and very detailed process descriptions. The manuals are kept at the WTP; and are readily available to all WTP staff.</p> <p>At the WTP there is also a binder which contains abbreviated (condensed) operations and maintenance manuals. There is also the full technical series of operations and maintenance manuals and binders on site.</p>		

Question ID	MRDW1063000	
Question	Question Type	Legislative Requirement
For every required operational test and for every required sample, is a record made of the date, time, location, name of the person conducting the test and result of the test?	Legislative	SDWA O. Reg. 170/03 6-10 (1)

Observation
For every required operational test and every required sample, a record was made of the date, time, location, name of the person conducting the test and result of the test.
"Facility Logbooks" and other record keeping mechanisms maintained by Town of Arnprior staff were reviewed for the period between February 1, 2021 to January 31, 2022.
According to Town of Arnprior staff; only certified operators perform operational testing that is not performed by continuous monitoring equipment. Entries are made in chronological order.

Question ID	MRDW1064000	
Question	Question Type	Legislative Requirement
Did the operator-in-charge ensure that records were maintained of all adjustments made to the processes within his or her responsibility?	Legislative	SDWA O. Reg. 128/04 26 (2)
Observation		
The operator-in-charge ensured that records were maintained of all adjustments made to the processes within his or her responsibility.		

Question ID	MRDW1065000	
Question	Question Type	Legislative Requirement
Are logs and other record keeping mechanisms available for at least five (5) years?	Legislative	SDWA O. Reg. 128/04 27 (6)
Observation		
Logs or other record keeping mechanisms were available for at least five (5) years.		

Question ID	MRDW1059000	
Question	Question Type	Legislative Requirement
Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?	Legislative	SDWA O. Reg. 128/04 28
Observation		
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.		

Question ID	MRDW1060000	
Question	Question Type	Legislative Requirement
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V	Legislative	SDWA 31 (1)

of the SDWA?		
Observation		
<p>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.</p> <p>The Operations and Maintenance Manuals are in order and consistent with conditions 16.0 of Schedule B of MDWL No. 177-101 Issue No. 7. The manuals are kept at the WTP, readily available to all Town of Arnprior staff.</p> <p>The operation and maintenance manuals and the emergency/contingency plans are reviewed on an annual schedule and are updated if needed.</p>		

Question ID	MRDW1061000	
Question	Question Type	Legislative Requirement
Are logbooks properly maintained and contain the required information?	Legislative	SDWA O. Reg. 128/04 27 (1), SDWA O. Reg. 128/04 27 (2), SDWA O. Reg. 128/04 27 (3), SDWA O. Reg. 128/04 27 (4), SDWA O. Reg. 128/04 27 (5), SDWA O. Reg. 128/04 27 (6), SDWA O. Reg. 128/04 27 (7)
Observation		
<p>Logbooks were properly maintained and contained the required information.</p> <p>"Facility Logbooks" and other record keeping mechanisms maintained by Town of Arnprior staff were reviewed for the period between February 1, 2021 to January 31, 2022.</p> <p>According to Town of Arnprior staff; only certified operators perform operational testing that is not performed by continuous monitoring equipment. Entries are made in chronological order.</p>		

Question ID	MRDW1062000	
Question	Question Type	Legislative Requirement
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O.	Legislative	SDWA O. Reg. 170/03 7-5

Reg. 170/03 7-5?		
Observation		
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.		

Question ID	MRDW1066000	
Question	Question Type	Legislative Requirement
Is spill containment provided for process chemicals and standby power generator fuel?	BMP	Not Applicable
Observation		
Spill containment was provided for process chemicals and/or standby power generator fuel.		

Question ID	MRDW1067000	
Question	Question Type	Legislative Requirement
Are clean-up equipment and materials in place for the clean up of spills?	BMP	Not Applicable
Observation		
Clean-up equipment and materials were in place for the clean up of spills.		

Question ID	MRDW1068000	
Question	Question Type	Legislative Requirement
If available, are standby power generators tested under normal load conditions?	BMP	Not Applicable
Observation		
Standby power generators were tested under normal load conditions.		

Question ID	MRDW1069000	
Question	Question Type	Legislative Requirement
Are all storage facilities completely covered and secure?	BMP	Not Applicable
Observation		
All storage facilities were completely covered and secure.		

Question ID	MRDW1070000	
Question	Question Type	Legislative Requirement
Are air vents and overflows associated with reservoirs and	BMP	Not Applicable

elevated storage structures equipped with screens?		
Observation		
Air vents and overflows associated with reservoirs and elevated storage structures were equipped with screens.		

Question ID	MRDW1071000	
Question	Question Type	Legislative Requirement
Has the owner provided security measures to protect components of the drinking water system?	BMP	Not Applicable
Observation		
<p>The owner had provided security measures to protect components of the drinking water system.</p> <p>All components of the WTP were found to be completely covered, secure, and under lock and key at all times.</p> <p>Intrusion alarms are installed at the following locations:</p> <ul style="list-style-type: none"> - WTP - Water Tower <p>The water tower as well as the water treatment plant has its perimeter fully fenced complete with locked gate access, security lighting and "no trespassing" sign.</p>		

Question ID	MRDW1072000	
Question	Question Type	Legislative Requirement
Has the owner and/or operating authority undertaken efforts to promote water conservation and reduce water losses in their system?	BMP	Not Applicable
Observation		
<p>The owner and/or operating authority undertook efforts to promote water conservation and reduce water losses in their system.</p> <p>Water conservation is being practiced in Arnprior. The owner has developed By-Law No. 6802-18 which states the following: "Water conservation measures are in effect from May 1st to September 30th, for each calendar year. During these months, those who derive water from the Arnprior Water Treatment Plant are permitted to water their lawns and/or vegetable gardens and/or flower beds, with an outdoor watering system. The municipal addresses which are even can water on even numbered calendar days and the municipal addresses which are odd can water on odd numbered calendar days.</p>		

Question ID	MRDW1073000	
Question	Question Type	Legislative Requirement

Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?	Legislative	SDWA O. Reg. 128/04 23 (1)
Observation		
<p>The overall responsible operator has been designated for each subsystem.</p> <p>The Arnprior water treatment plant is classified as a Class 3 Water Treatment Subsystem (WTS) Certificate No. 645 issued April 30, 2006.</p> <p>The Arnprior water distribution system is classified as a Class 1 Water Distribution Subsystem (WDS) Certificate No. 1918 issued on July 21, 2005.</p> <p>Mr. Scott Matthews is the Overall Responsible Operator (ORO) for the Arnprior WTP and possesses the required qualifications. When Mr. Matthews cannot act as ORO the backup ORO who shall replace him possesses the required qualifications.</p>		

Question ID	MRDW1074000	
Question	Question Type	Legislative Requirement
Have operators in charge been designated for all subsystems for which comprise the drinking water system?	Legislative	SDWA O. Reg. 128/04 25 (1)
Observation		
<p>Operators-in-charge had been designated for all subsystems which comprised the drinking water system.</p> <p>The operator designated as the OIC will be in that role on a six-week rotation.</p> <p>The on-call operator is on a one-week rotation.</p> <p>Should a call come in afterhours and the on-call operator needs to respond, the on-call operator would then become the OIC at the time of that event.</p> <p>All of the information was recorded and maintained in WTP and in the logbook. The duty operators and the on-call operators for each subsystem are designated to be the OIC.</p>		

Question ID	MRDW1075000	
Question	Question Type	Legislative Requirement
Do all operators possess the required certification?	Legislative	SDWA O. Reg. 128/04 22
Observation		
All operators possessed the required certification.		

Question ID	MRDW1076000	
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Question	Question Type	Legislative Requirement
Do only certified operators make adjustments to the treatment equipment?	Legislative	SDWA O. Reg. 170/03 1-2 (2)
Observation		
Only certified operators made adjustments to the treatment equipment.		

Question ID	MRDW1078000		
Question	Question Type	Legislative Requirement	
In instances where the overall responsible operator was unable to act, was an adequately certified operator designated to act in place of the overall responsible operator?	Legislative	SDWA O. Reg. 128/04 23 (1), SDWA O. Reg. 128/04 23 (2), SDWA O. Reg. 128/04 23 (3), SDWA O. Reg. 128/04 23 (4), SDWA O. Reg. 128/04 23 (5), SDWA O. Reg. 128/04 23 (6), SDWA O. Reg. 128/04 23 (7)	
Observation			
An adequately licenced operator was designated to act in place of the overall responsible operator when the overall responsible operator was unable to act.			

Question ID	MRDW1099000		
Question	Question Type	Legislative Requirement	
Do records show 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)?	Information	Not Applicable	
Observation			
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).			
Sample records provided for the Arnprior DWS for the period between February 1, 2021 to January 31, 2022, were reviewed and found to be in order.			
All the parameters sampled were in order with the limits set in Ontario Regulation 169/03.			

NOTE: It is not a legal requirement of the owner that the drinking water meets all the standards, all of the time; however, it is a legal requirement that the owner reports any exceedance of a Standard and follows the corrective actions prescribed in regulation, including any additional directions prescribed by the local Medical Officer of Health.

Question ID	MRDW1079000	
Question	Question Type	Legislative Requirement
Are all microbiological water quality monitoring requirements for raw water samples prescribed by legislation being met?	Legislative	SDWA O. Reg. 170/03 10-4 (1),SDWA O. Reg. 170/03 10-4 (2),SDWA O. Reg. 170/03 10-4 (3)
Observation		
All microbiological water quality monitoring requirements for raw water samples were being met.		
Section 10-4 of Schedule 10, Ontario Regulation 170/03, requires that a raw water sample is taken at least once a week. A review of raw water quality monitoring data for the period in question, confirmed that a raw water sample was collected before any treatment was applied to the water at least once a week.		

Question ID	MRDW1081000	
Question	Question Type	Legislative Requirement
Are all microbiological water quality monitoring requirements for distribution samples being met?	Legislative	SDWA O. Reg. 170/03 10-2 (1),SDWA O. Reg. 170/03 10-2 (2),SDWA O. Reg. 170/03 10-2 (3)
Observation		
All microbiological water quality monitoring requirements for distribution samples were being met.		
Section 10-2(1)(a) of Schedule 10 of Ontario Regulation 170/03 requires that the owners of a drinking water system and the operating authority for the system shall ensure that, if the system serves 100,000 people or less, at least eight (8) distribution samples, plus one (1) additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one (1) of the samples being taken in each week.		
According to information provided at the time of the inspection, the total permanent residential		

population served by the Arnprior DWS is approximately 9,629 (2021 Census). Based on the population of 10,000, the total number of distribution samples required per month is at least 18 with at least 25 per cent of the samples taken are to be tested for general bacteria population expressed as colony counts on a Heterophonic Plate Count (HPC).

A review of the water quality data for the period in question, confirmed that the microbiological monitoring requirements for the distribution system were consistently being met by a range of samples spanning from 25 to 32 samples per month and 25% of those samples were analyzed for HPC.

Question ID	MRDW1083000		
Question	Question Type	Legislative Requirement	
Are all microbiological water quality monitoring requirements for treated samples being met?	Legislative	SDWA O. Reg. 170/03 10-3	
Observation			
All microbiological water quality monitoring requirements for treated samples were being met. Section 10-3 of Schedule 10 of Ontario Regulation 170/03 requires that a treated water sample be taken at least once a week and tested for the required microbiological parameters.			
A review of the water quality monitoring data for the period in question, confirmed that all microbiological monitoring requirements for treated water were consistently being met.			

Question ID	MRDW1084000		
Question	Question Type	Legislative Requirement	
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-2	
Observation			
All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.			
Section 13-2 of Schedule 13 of Ontario Regulation 170/03 requires that at least one sample be taken every 12 months and tested for the required inorganic parameters identified under Schedule 23.			
A review of the inorganic water quality monitoring data for the period in question, confirmed that the required samples were collected on January 14, 2021 and then again on January 20, 2022.			
The previous Schedule 23 samples were collected on January 14, 2020.			

Question ID	MRDW1085000		
Question	Question	Legislative	

	Type	Requirement
Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-4 (1),SDWA O. Reg. 170/03 13-4 (2),SDWA O. Reg. 170/03 13-4 (3)
Observation		
<p>All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.</p> <p>Section 13-4 of Schedule 13 of Ontario Regulation 170/03 requires that at least one sample be taken every 12 months and tested for the required organic parameters identified under Schedule 24.</p> <p>A review of the organic water quality monitoring data for the period in question, confirmed that the required samples were collected on January 14, 2021 and then again on January 20, 2022.</p> <p>The previous Schedule 24 samples were collected on January 14, 2020.</p>		

Question ID	MRDW1086000	
Question	Question Type	Legislative Requirement
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?	Legislative	SDWA O. Reg. 170/03 13-6.1 (1),SDWA O. Reg. 170/03 13-6.1 (2),SDWA O. Reg. 170/03 13-6.1 (3), SDWA O. Reg. 170/03 13-6.1 (4),SDWA O. Reg. 170/03 13-6.1 (5),SDWA O. Reg. 170/03 13-6.1 (6)
Observation		
<p>All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.</p> <p>Section 13-6.1 (1) of Schedule 13 of Ontario Regulation 170/03 requires that at least one sample be taken every three months and tested for haloacetic acids (HAA).</p> <p>A review of the water quality monitoring data for the period in question, confirmed that haloacetic</p>		

acids samples were collected in accordance with the monitoring requirements prescribed by the legislation.

Since the previous inspection HAA samples were collected on January 14, April 13, July 13, October 12 all of 2021 and January 19, 2022.

The running annual average based on the results of the four most recent quarterly sample results is 26.63 µg/L which is below the Ontario Drinking Water Quality Standard (ODWQS) limit of 80 µg/L (running annual average).

Question ID	MRDW1087000	
Question	Question Type	Legislative Requirement
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?	Legislative	SDWA O. Reg. 170/03 13-6 (1)
Observation		
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.		
Section 13-6 of Schedule 13 of Ontario Regulation 170/03 requires that at least one sample be taken every three months and tested for trihalomethanes (THM).		
A review of the water quality monitoring data for the period in question, confirmed that THM samples were collected in accordance with the monitoring requirements prescribed by the legislation.		
Since the previous inspection THM samples were collected on January 14, April 13, July 13, October 12 all of 2021 and January 19, 2022.		
The running annual average based on the results of the four most recent quarterly sample results is 40.5 µg/L which is below the Ontario Drinking Water Quality Standard (ODWQS) limit of 100 µg/L (running annual average).		

Question ID	MRDW1088000	
Question	Question Type	Legislative Requirement
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?	Legislative	SDWA O. Reg. 170/03 13-7
Observation		
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 Ontario Regulation 170/03 requires that at least one sample be taken every three months and tested for nitrates/nitrites.

A review of the water quality monitoring data for the period in question confirmed that the nitrate/nitrite samples were collected in accordance with monitoring requirements prescribed by the legislation.

Since the previous inspection nitrate/nitrite samples were collected on January 14, April 13, July 13, October 12 all of 2021 and January 19, 2022.

Question ID	MRDW1089000	
Question	Question Type	Legislative Requirement
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA O. Reg. 170/03 13-8
Observation		
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.		
Section 13-8 of Schedule 13 of Ontario Regulation 170/03 requires that at least one sample be taken every 60 months and tested for sodium.		
A review of the water quality monitoring data for the period in question, confirmed that the sodium samples were collected in accordance with monitoring requirements prescribed by the legislation.		
Sodium was last sampled (for regulatory purposes) on January 14, 2021 and the result 12.8 mg/L, which is below the Ontario Drinking Water Quality Standard (ODWQS) guideline of 20 mg/L.		
Arnprior DWS will not be required to collect samples for sodium before January 14, 2026 (+/- 90 days).		

Question ID	MRDW1091000	
Question	Question Type	Legislative Requirement
Where fluoridation is practiced, are the required daily samples being taken at the end of the fluoridation process?	Legislative	SDWA O. Reg. 170/03 7-4
Observation		
The required daily samples were being taken at the end of the fluoridation process.		
Section 7-4 of Schedule 7 of Ontario Regulation 170/03 requires that if a drinking water system provides fluoridation, the owner of the system and the operating authority for the system shall ensure that a water sample is taken at the end of the fluoridation process at least once every day and is tested for fluoride.		

A review of the water quality monitoring data for the period in question, confirmed that the fluoride samples were collected in accordance with monitoring requirements prescribed by the legislation.

The maximum fluoride daily concentration was 0.77 mg/L which was sampled on November 27, 2021 and the average daily fluoride concentration throughout the inspection review period was 0.75 mg/L.

Question ID	MRDW1092000	
Question	Question Type	Legislative Requirement
Has the owner ensured that water samples are taken at the prescribed location?	Legislative	SDWA O. Reg. 170/03 6-2
Observation		
The owner ensured that water samples were taken at the prescribed location.		

Question ID	MRDW1094000	
Question	Question Type	Legislative Requirement
Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?	Legislative	SDWA 31 (1)
Observation		
<p>All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.</p> <p>Schedule C of the MDWL 170-101 Issue No. 7 requires various samples to be taken; they are as follows:</p> <p>Schedule C, Table 5 of the MDWL requires a drinking water health related sample to be taken quarterly at the point of entrance to distribution system for Benzo(a)pyrene.</p> <p>Schedule C, Table 6 of the MDWL requires drinking water non-health related samples to be taken quarterly at the point of entrance to the distribution system for Total Organic Carbon, Dissolved Organic Carbon and Colour.</p> <p>All above samples were taken at the required frequencies.</p> <p>CORROSION CONTROL</p> <p>Condition 5.1, of Schedule C of the MDWL required the owner to implement a Corrosion Control Plan (CCP). The following samples are required to be taken as part of the Town's corrosion control plan:</p> <p>a) pH from the point of entry into the distribution system (SCADA), alkalinity and lead, both from</p>		

the point of entry into the distribution system (quarterly).

b) pH, alkalinity and lead taken in the distribution system; four (4) samples minimum, annually and orthophosphate from a point in the distribution system (monthly from the Arnprior WPCP).

c) pH, alkalinity and lead from residential/non-residential taps (12 samples minimum, annually).

Condition 5.2, of Schedule C of the MDWL required the owner to prepare a corrosion control evaluation report (outlined in condition 5.1.2) and cover each calendar year, and submit to the Director by March 31st, annually.

Condition 5.3, of Schedule C of the MDWL required the owner to submit every 6 months to the Ottawa district office the lead sampling data required under Table 1 of Condition 5.1 of Schedule C of the MDWL.

All CCP reports and samples were taken at the required frequencies. Samples were collected and analyzed to reveal that the water chemistry has been consistent over the entire inspection period.

Question ID	MRDW1095000	
Question	Question Type	Legislative Requirement
Have all lead sampling requirements prescribed by Schedule 15.1 of O.R. 170/03 been met?	Legislative	SDWA O. Reg. 170/03 15.1-10, SDWA O. Reg. 170/03 15.1-4 (1),SDWA O. Reg. 170/03 15.1-5 (1), SDWA O. Reg. 170/03 15.1-5 (10),SDWA O. Reg. 170/03 15.1-5 (11), SDWA O. Reg. 170/03 15.1-5 (12),SDWA O. Reg. 170/03 15.1-5 (2), SDWA O. Reg. 170/03 15.1-5 (3),SDWA O. Reg. 170/03 15.1-5 (4), SDWA O. Reg. 170/03 15.1-5 (5),SDWA O. Reg. 170/03

		<p>15.1-5 (6), SDWA O. Reg. 170/03 15.1-5 (7),SDWA O. Reg. 170/03 15.1-5 (8), SDWA O. Reg. 170/03 15.1-5 (9),SDWA O. Reg. 170/03 15.1-7 (1), SDWA O. Reg. 170/03 15.1-7 (2),SDWA O. Reg. 170/03 15.1-7 (3), SDWA O. Reg. 170/03 15.1-7 (4),SDWA O. Reg. 170/03 15.1-9 (1), SDWA O. Reg. 170/03 15.1-9 (2),SDWA O. Reg. 170/03 15.1-9 (3), SDWA O. Reg. 170/03 15.1-9 (4),SDWA O. Reg. 170/03 15.1-9 (5), SDWA O. Reg. 170/03 15.1-9 (6),SDWA O. Reg. 170/03 15.1-9 (7), SDWA O. Reg. 170/03 15.1-9 (8),SDWA O. Reg. 170/03 15.1-9 (9)</p>
<p>Observation</p>		
<p>All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were being met.</p> <p>Condition 5.1, of Schedule C of the MDWL required the owner to implement a Corrosion Control Plan (CCP). The CCP is very comprehensive and is more stringent than the requirements of Schedule 15.1 of Ontario Regulation 170/03.</p>		

The owners met the sampling and reporting requirements of Condition 5.1 of Schedule C of the MDWL Issue No. 7 therefore meet the requirements of Schedule 15.1 of Ontario Regulation 170/03.

Question ID	MRDW1096000	
Question	Question Type	Legislative Requirement
Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?	Legislative	SDWA O. Reg. 170/03 6-3 (1)
Observation		
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.		
A review of the microbiological water quality monitoring data for the period in question, confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained. No concerns were identified.		

Question ID	MRDW1098000	
Question	Question Type	Legislative Requirement
Has the owner indicated that the required records are kept and will be kept for the required time period?	Legislative	SDWA O. Reg. 170/03 13 (1), SDWA O. Reg. 170/03 13 (2), SDWA O. Reg. 170/03 13 (3)
Observation		
The owner indicated that the required records are kept and will be kept for the required time period.		

Question ID	MRDW1100000	
Question	Question Type	Legislative Requirement
Did any reportable adverse/exceedance conditions occur during the inspection period?	Information	Not Applicable
Observation		
There were no reportable adverse/exceedances during the inspection period.		

Question ID	MRDW1113000	
Question	Question Type	Legislative Requirement
Have all changes to the system registration information been	Legislative	SDWA O. Reg.

provided to the Ministry within ten (10) days of the change?		170/03 10.1 (3)
Observation		
All changes to the system registration information were provided within ten (10) days of the change.		

Question ID	MRDW1110000	
Question	Question Type	Legislative Requirement
Was an Annual Report containing the required information prepared by February 28 of the following year?	Legislative	SDWA O. Reg. 170/03 11 (6)
Observation		
The Annual Report containing the required information was prepared by February 28th of the following year.		

Question ID	MRDW1114000	
Question	Question Type	Legislative Requirement
Does the owner have evidence that, when required, all legal owners associated with the DWS were notified of the requirements of the Licence & Permit?	Legislative	SDWA 31 (1)
Observation		
The owner had evidence that all required notifications to all legal owners associated with the Drinking Water System had been made during the inspection period.		

Question ID	MRDW1111000	
Question	Question Type	Legislative Requirement
Have Summary Reports for municipal council been completed on time, include the required content, and distributed in accordance with the regulatory requirements?	Legislative	SDWA O. Reg. 170/03 22-2 (1),SDWA O. Reg. 170/03 22-2 (2),SDWA O. Reg. 170/03 22-2 (3),SDWA O. Reg. 170/03 22-2 (4)
Observation		
Summary Reports for municipal council were completed on time, included the required content, and were distributed in accordance with the regulatory requirements.		

APPENDIX A
REFERENCE MATERIAL

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

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	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	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 potable 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

APPENDIX B
COMPONENT INFORMATION REPORT

DWS Component Information Report for 22000932

as of 03-MAR-2022

Drinking Water System Profile Information

DWS #	22000932
MOE Assigned Name	Arnprior Drinking Water System
Category	LMRS
Regulation	O.REG 170/03
DWS Type	Water Treatment Plant
Source Type	Surface Water
Address	71 James Street, Arnprior, Ontario, K7S 1E1, Canada
Region	Eastern Region
District	Ottawa District
Municipality	Arnprior
Public Health Unit	Renfrew County And District Health Unit

Other -- Other

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Arnprior Sewage Plant	Other	Other	233 Albert St.,	An online continuous analyzer is installed at the Arnprior Water Pollution Control Plant (WPCP) to continuously measure free and total chlorine residuals for monitoring of secondary disinfection combined chlorine residuals.

Other -- Reservoir

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Distribution System	Other	Reservoir	433 Hartney St.,	<p>The distribution system for the Town of Arnprior serves approximately 8,795 persons. The system consists of approximately 57.8 km (57,835.63 metres) of watermain and a 2,727 m³ elevated water storage. The watermain type consists of the following: 20.67 km of plastic; 24.88 km of ductile iron; and 12.279 km of cast iron. Watermain size ranges from 75mm diameter to 600mm diameter, with the majority of watermains being 150mm diameter and 200mm diameter.</p> <p>An on-line continuous total chlorine residual analyzer monitors chloramination (combined chlorine residual) for secondary disinfection at the Arnprior Water Pollution Control Centre (WPCC).</p> <p>The distribution system also comprises of 343 municipal hydrants and 658 valves, including some, but not all hydrant valves. It was reported that there are 40 dead end lines. It was reported that there are three (3) river water main crossings.</p> <p>It was reported that it is a common feed/distribution system with the treated water discharged from the WTP to the distribution system and water tower.</p>

Other -- Treatment Facility

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Process Wastewater	Other	Treatment Facility	71 James St.,	<p>Process wastewater is generated from the Actiflo hydrocyclones and settling tanks in addition to the filter backwash and filter to waste residues. The Actiflo waste is directed to a residual treatment tank. Gravity flow through timed-automated valves (3) to the sludge pumps that discharge to the municipal sanitary sewer system.</p> <p>The filter backwash and filter to waste water drains to a 63.0 m³ residuals</p>

DWS Component Information Report for 220000932

as of 03-MAR-2022

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
				treatment tank (where polymer is mixed by two mechanical mixers to improve settling-not currently in use). After sludge is left to settle, the supernatant is dechlorinated using sodium bisulphite and is discharged by gravity to the Madawaska River. Two sludge pumps (one duty, one standby) each rated at 24 L/s pump the sludge to a 500 m long 150 mm diameter PVC sanitary forcemain, which discharges to a manhole located on Daniel Street. Effluent samples are collected by certified operators and analyzed for chlorine residual and TSS prior to discharge to the Madawaska River.

Source -- Surface Water

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Raw Water	Source	Surface Water	71 James St.,	<p>The raw water source for the Arnprior Water Drinking Water System (DWS) is the Madawaska River. The Engineer's Report dated November 2000 by J.L. Richards stated at the time that the watershed is largely undeveloped with few industries. Arnprior Aerospace Inc. and the Ontario Power Generation hydroelectric generating station, both located approximately one kilometres upstream from the raw water intake are notable.</p> <p>A concrete intake structure located approximately 10 m from the west bank of the Madawaska River equipped with a 25 by 25 mm mesh screen takes in raw water using a 500 mm dia. intake pipe to a 33 m³ capacity wet well under the low lift pumping station. The original low lift station is a brick building with concrete foundation and floor constructed in 1907. It is located on the shore of the river with one side of the building directly on the river's edge. Two vertical turbine pumps each rated at 11,000 m³/day at a TDH of 25 m and an electrically driven centrifugal pump capacity of 11,000 m³ at a TDH of 25 m pump to the treatment subsystem. Previous expansion to a one story building with a basement houses three newer raw water pumps, related treatment, mechanical, electrical instrumentation equipment and control systems. A flow control valve set at 120 L/sec, ensures the maximum flow rate (10,340 m³/day) is not exceeded.</p> <p>It was reported that the raw water intake screens are checked every few months for zebra mussels and that divers inspect the intake every few years, which was last done in 2017.</p>

Treated Water Poe -- Treatment Facility

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
Water Treatment Plant	Treated Water Poe	Treatment Facility	71 James St.,	<p>The Arnprior DWS is a chemically-assisted filtration treatment facility. An Actiflo microsand ballasted clarification process system provides water to the filters. The low lifts pump raw water to the treatment plant via a 400 mm raw watermain equipped with a flow meter. Coagulant is injected into the main header prior to the Actiflo flash mix tank then discharged to the Actiflo coagulation, flocculation, clarification and settling tanks system designed for 11,000 m³/day each.</p> <p>Water from the treatment train is discharged to three (3) dual media filters (sand/ anthracite) operated at a constant flow rate. Each filter is equipped with a flow meter and turbidimeter. The dual media consists of a 400 mm sand and 600 mm anthracite layer over a prefabricated underdrain system, complete with air scour.</p> <p>Soda ash (for corrosion control), phosphoric acid solution (for corrosion control), hydrofluorosilicic acid (for fluoridation), chlorine gas (for primary</p>

DWS Component Information Report for 22000932

as of 03-MAR-2022

LWIS Component Name	LWIS Component Type	LWIS Component Sub-Type	Component Address	Comments
				<p>disinfection), and ammonia (for secondary disinfection through chloramination) are added to the filtered water before water is sent to the distribution system.</p> <p>Filtered water flows through two clear wells in series. The volumes are 2,290 m³ for Clear Well 1 and 2,290 for Clear Well 2. However, the Drinking Water Works Permit describes the volume of Clear Well 2 as 1,804 m³. The previous ORO explained that Clear Well 2 has a clearance issue for an overflow pipe that impacts the volume of that clear well. Both clear wells have the same baffle factor. Under normal operation, Clear Well 1 is used for primary disinfection while Clear Well 2 is used for ammonia injection to achieve chloramination.</p> <p>Free chlorine residual is monitored before injection of ammonia to ensure CT has been achieved.</p> <p>Three high lift pumps each rated at 125 L/s (one duty, two standby) are used to pump water into the distribution system. Flow rate, total chlorine residual, pH, fluoride, and turbidity are continuously monitored at the discharge header.</p> <p>A 400 kW back up generator provides standby power during power outages.</p> <p>It was reported that all chemical feed pumps are flow paced and equipped with automatic switchover mechanisms from the duty to standby pump. It was reported that there are no flow sensors on any of the chemical feed pumps. It is recommended that the coagulant feed pumps be equipped with flow sensors.</p>