

**Ministry of the Environment,
Conservation and Parks**

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



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February 23, 2026

Ben Ritchie
Arnprior Water Filtration Plant
71 James Street Arnprior
County of Renfrew, Ontario, K7S 0C6

Re: Drinking Water Inspection Program – 2025/2026 Inspection Report
Arnprior Drinking Water System – 1-1481754132

Attached to this letter is the report for the recent unannounced inspection completed at the Arnprior Drinking Water System on November 28, 2025. Please note, the corresponding Incident Rating Report (IRR) and Risk Methodology document will follow in a separate document. This report provides an assessment of compliance and conformance based on observations and information available during the inspection review period only.

Instances of non-compliance were identified during the inspection. Please refer to the “NON-COMPLIANCE ITEMS” section within the report to determine the actions required and take any necessary steps by the date(s) prescribed to bring the system/facility into compliance/conformance.

I would also like to bring your attention to the two recommendations outlined in questions DWMR1037001 and DWMR1104001. Please let me know if you have any questions or concerns and we can discuss.

Sincerely,

A handwritten signature in cursive script that reads "Erin Markham".

Erin Markham
Water Compliance Officer | Badge # 1553 | Ottawa District Office
Drinking Water and Environmental Compliance Division
Ministry of the Environment, Conservation and Parks | Government of Ontario
(613) 698-8159

- Cc:
- Ben Ritchie, Waterworks Supervisor, Town of Arnprior, britchie@arnprior.ca
 - John Steckly, General Manager of Operations, Town of Arnprior, jsteckly@arnprior.ca
 - Robin Paquette, Chief Administrative Officer, Town of Arnprior rpaquette@arnprior.ca
 - Randy McLaren, District Manager, Ministry of Natural Resources and Forestry, randy.mclaren@ontario.ca
 - David Tantalo, Manager, Healthy Environments, Renfrew County & District Health Unit, dtantalo@rcdhu.com
 - Shannon Hamilton-Browne, Water Compliance Supervisor (A), Ministry of the Environment, Conservation and Parks, Shannon.hamiltonbrowne@ontario.ca
 - District Office
- C: File SI-RE-AR-JA-540 (2025-26)



ARNPRIOR DRINKING WATER SYSTEM
Physical Address: 71 JAMES ST, ARNPRIOR,
ON K7S 1E1

INSPECTION REPORT

System Number: 220000932
Entity: CORPORATION OF THE TOWN
OF ARNPRIOR
Inspection Start Date: November 14, 2025
Site Inspection Date: November 28, 2025
Inspection End Date: January 28, 2026
Inspected By: Erin Markham
Badge #: 1553



(signature)

INTRODUCTION

Purpose

This unannounced focused inspection was conducted to confirm compliance with Ministry of the Environment, Conservation and Parks' (MECP) legislation and conformance with ministry drinking water policies and guidelines.

Scope

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 and the operation of the system.

The inspection of the drinking water system included both the physical inspection of the component parts of the system listed in section 4 "Systems Components" of the report and the review of data and documents associated with the operation of the drinking water system during the review period.

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 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.

Facility Contacts and Dates

The drinking water system is owned and operated by the Corporation of the Town of Arnprior.

The system serves an estimated population of 9,629 and is categorized as a Large Municipal Residential System. Information reviewed for this inspection covered the time period of December 5, 2024 to November 28, 2025.

Water Compliance Officers Erin Markham and Michelle Gordon met with Ben Ritchie the Waterworks Supervisor and operators as part of the inspection process.

Systems/Components

All locations associated with primary disinfection were visited as part of this inspection. The following sites were visited as part of the inspection of the drinking water system:

- the low lift pump station, the wastewater treatment plant where secondary disinfection is monitored, and the water tower

Permissions/Approvals

This drinking water system was subject to specific conditions contained within the following permissions and/or approvals (please note this list is not exhaustive) at the time of the inspection in addition to the requirements of the SDWA and its regulations:

Municipal Drinking Water Licence (MDWL) - 170-101, Issue # 7, Issued on March 21, 2021
Drinking Water Works Permit (DWWP) -170-201, Issue #3, Issued on March 31st, 2021

NON-COMPLIANCE

The following item(s) have been identified as non-compliance, based on a "No" response captured for a legislative question(s).

For additional information on each question see the Inspection Details section of the report.

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

Item	Question	Compliance Response/Corrective Action(s)
NC-1	<p>Question ID: DWMR1104001</p> <p>Were immediate verbal notification requirements for adverse water quality incidents met?</p>	<p>Immediate verbal notification requirements of adverse water quality incidents prescribed by Schedule 16-6 of O. Reg. 170/03 were not met.</p> <p>For a period of about 3 hours and 21 minutes on October 16, 2025, the total chlorine residual (TCR) in the distribution was below 0.25 mg/L (lowest reading of 0.15 mg/L) due to the incident at the water plant resulting in no ammonia being dosed for a little over 10 hours over October 15 and 16, 2025. There was a free chlorine residual (FCR) taken and tested during this time with a result of 0.15 mg/L.</p> <p>This is a violation of the obligation for the owner to ensure the equipment is operated such that at all times and in all locations, the combined chlorine residual (CCR) is never less than 0.25 mg/L, if the drinking water system provides chloramination as per Schedule 1-2(2)4 of O. Reg. 170/03.</p> <p>There was a duty to report a CCR less than 0.25 mg/L during the multi-hour improper 'dosing event'. As the TCR is being used as the regulatory analyzer for the secondary disinfectant residual, this event should have been reported as an adverse water quality incident.</p> <p>Actions Required:</p> <p>Immediately report this incident to the Spills Action Center and the Health Unit.</p> <p>By March 31, 2026 provide to Provincial Officer Erin Markham at erin.markham2@ontario.ca</p>

and to environment.ottawa@ontario.ca a written procedure outlining adverse water quality incidents, including low chlorine residuals both in the distribution system and at the treatment facility as per s.16-4. The procedure should include references to O. Reg 170 and applicable schedules (6, 7, 16, 17, etc.). There should be details of who must be reported to (Spills Action Center and the local Health Unit), how (verbal and written), and the timeline for reporting an incident (Section 16-4 of Schedule 16). The procedure should list the corrective actions that are to be taken and the timelines (Section 17-4 of Schedule 17). Also provide training records for all staff on this procedure.

NC-2 **Question ID:**
DWMR1101001

For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?

Corrective actions per Schedule 17 of O. Reg. 170/03, including any other steps that were directed by the Medical Officer of Health, were not taken to address adverse conditions.

The low chlorine in the distribution on October 16, 2025 was not reported to the Health Unit and so there were no corrective actions provided by the Medical Officer of Health.

The operating authority should have done the following (in addition to reporting) as per Schedule 17 of O. Reg 170 section 17-4;

1. Immediately flush the watermains and restore secondary disinfection to ensure that,
 - i. a free chlorine residual of at least 0.05 milligrams per litre is achieved at all points in the affected parts of the distribution system, if the drinking water system provides chlorination and does not provide chloramination, or
 - ii. a combined chlorine residual of at least 0.25 milligrams per litre is achieved at all points in the affected parts of the distribution system, if the drinking water system provides chloramination.

2. Take such other steps as are directed by the medical officer of health.

Actions Required:

Refer to the Actions Required under question DWMR1104001 and complete any corrective actions (if any) as directed by the Health Unit upon reporting of the adverse water quality incident from October 16, 2025.

NC-3

Question ID:
DWMR1012001

Did the owner have a harmful algal bloom monitoring plan in place that met the requirements of the Municipal Drinking Water Licence?

The owner did not have a harmful algal bloom monitoring plan in place which met the requirements of the Municipal Drinking Water Licence.

Section 6 of the Municipal Drinking Water Licence (MDWL) 170-101 outlines the details of the Harmful Algal Bloom (HAB) studies required. This includes the requirements to have a monitoring, reporting and sampling plan in place. The owner provided their Policy No. PW-DWQMS-SOP17 which includes all necessary elements to satisfy the requirements outline in the MDWL.

When asked for training records for staff on the HAB Policy, the owner stated that there is no formal training records for this but that historically, the ORO has trained new staff on how to complete the monitoring.

As per sections 6.1.3 and 6.3.6 of the MDWL and as outlined in sections 4.1, 6 vi and 10.1.2 from the Policy, training must be performed annually by the ORO for all staff and records of this shall be retained.

Actions Required:

By March 31, 2026 provide a written plan to Provincial Officer Erin Markham by email to erin.markham2@ontario.ca and environment.ottawa@ontario.ca. This plan should demonstrate how training will be provided by

the ORO annually to each operator prior to each warm season, and how records will be retained of this annual training.

NC-4 **Question ID:**
DWMR1024001

Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?

Records did not confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection 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.

On October 15 and 16, 2025 there was a period of time (roughly 10 hours and 10 minutes) where no ammonia was being dosed for the secondary disinfection in order to achieve chloramination. As such there was a low TCR of 0.15 mg/L.

This occurred after a third party contractor was onsite performing the annual flow meter calibrations. The flow meter that the ammonia pumps are paced to was not plugged back in to the SCADA after the calibration. Due to this, there was no flow registered for this part of the process and so the ammonia pumps never received the signal to run. As such, there were no alarms triggered from the chemical pumps that typically would have alarmed out notifying the operator of either "failed to start", "failed to stop" or "pump not in auto".

Actions Required:

By March 31, 2026, provide to Provincial Officer Erin Markham to erin.markham2@ontario.ca and environment.ottawa@ontario.ca a written procedure for how situations such as this will be avoided in the future. This procedure should include details for how operators should monitor and review operations/trending before, during and after third party contractors or when internal staff perform work in a facility, including when taking any equipment offline. This should outline the importance of confirming systems are

running as they should.

By April 30, 2026 please provide training records demonstrating that all staff have been trained on this above mentioned procedure.

RECOMMENDATIONS

This should not be construed as a confirmation of full conformance with all potential applicable 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: DRINKING WATER | **Regulated Activity:** DW Municipal Residential

Question ID	DWMR1012001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner have a harmful algal bloom monitoring plan in place that met the requirements of the Municipal Drinking Water Licence?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner did not have a harmful algal bloom monitoring plan in place which met the requirements of the Municipal Drinking Water Licence.			
Section 6 of the Municipal Drinking Water Licence (MDWL) 170-101 outlines the details of the Harmful Algal Bloom (HAB) studies required. This includes the requirements to have a monitoring, reporting and sampling plan in place. The owner provided their Policy No. PW-DWQMS-SOP17 which includes all necessary elements to satisfy the requirements outline in the MDWL.			
When asked for training records for staff on the HAB Policy, the owner stated that there is no formal training records for this but that historically, the ORO has trained new staff on how to complete the monitoring.			
As per sections 6.1.3 and 6.3.6 of the MDWL and as outlined in sections 4.1, 6 vi and 10.1.2 from the Policy, training must be performed annually by the ORO for all staff and records of this shall be retained.			
Actions Required:			
By March 31, 2026 provide a written plan to Provincial Officer Erin Markham by email to erin.markham2@ontario.ca and environment.ottawa@ontario.ca. This plan should demonstrate how training will be provided by the ORO annually to each operator prior to each warm season, and how records will be retained of this annual training.			

Question ID	DWMR1014001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			

<p>Question: Was flow monitoring performed as required by the Municipal Drinking Water Licence or Drinking Water Works Permit?</p>
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Flow monitoring was performed as required.</p> <p>Schedule C of the MDWL Section 1.1 outlines the rated capacity of the treatment water flows. Review of the data available onsite confirms that the flows for both raw and treated water are monitored. Annual inspections/calibrations of flow meters were completed on October 15, 2025 by a third party contractor. During the previous year, the date of calibration took place October 15, 2024 which satisfies the requirement outlined in Section 3.2 and 3.2.1 in the MDWL for the calibrations to occur at least once every 12 months and not more than 30 days after the first anniversary.</p>

Question ID	DWMR1016001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Was the owner in compliance with the conditions associated with maximum flow rate or the rated/operational capacity in the Municipal Drinking Water Licence?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner was in compliance with the conditions associated with maximum flow rate and/or the rated/operational capacity conditions.			
The rated capacity is outlined in Section 1.1 of Schedule C of the MDWL as 10,340 m3/d. The peak flow during the inspection period occurred on August 16, 2025 with a flow of 6,315 m3. The average day flow for the inspection period was 4749 m3/d.			

Question ID	DWMR1018001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner ensure that equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner ensured that equipment was installed as required.			
Schedule A and C of the Drinking Water Works Permit (DWWP) 170-201 were reviewed onsite with staff while completing the visual inspection/tour of the facility. All equipment was installed accordingly.			

Question ID	DWMR1020001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 1 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 1 documents were prepared as required. There were four Form 1 documents completed during this inspection period and cover the works as follows; 1. For the watermain works related to Phase 4B of the Marshall's Bay Meadows subdivision. 2. For the reconstruction of MacDonald Street. 3. Covered the work performed on Hartney Street for the removal of 150mm diameter asbestos cement watermain and replaced with 150mm PVC watermain. 4. For the replacement of watermain and appurtenances for the 400mm watermain Madawaska River Crossing (Part 1).			

Question ID	DWMR1021001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were Form 2 documents prepared as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Form 2 documents were prepared as required. One Form 2 was completed for the replacement of the underdrain, feedbox and media of Filter #1, dated May 14, 2025.			

Question ID	DWMR1025001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Were all parts of the drinking water system that came in contact with drinking water disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All parts of the drinking water system were disinfected as required.			

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Question ID	DWMR1023001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			
Question: Did records indicate that the treatment equipment was operated in a manner that achieved the design capabilities prescribed by O. Reg. 170/03, Drinking Water Works Permit and/or Municipal Drinking Water Licence at all times that water was being supplied to consumers?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities prescribed. The Arnprior WTP consists of a conventional filtration process that provides chemically assisted filtration, and 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 (also herein referred to in the report as "the Disinfection Procedure"), including 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 by the time, water enters the distribution system. In addition, to be credited in meeting or exceeding the log removal credits identified above, the WTP must be operated to meet the following criteria: <ul style="list-style-type: none"> - A chemical coagulant must be used at all times when the treatment plant is in operation; - The chemical dosages must be monitored and adjusted in response to variations in raw water quality; - Effective backwash procedures must be maintained, including filter-to-waste or an equivalent procedure during filter ripening to ensure that the effluent turbidity requirements are met at all times; - Filtrate (filter effluent) turbidity must be continuously monitored from each filter; and - 95% of the filtered water turbidity measurements must be 0.3 Nephelometric Turbidity Units (NTU) or less each month for each filter All treatment equipment providing chemically assisted filtration and primary disinfection were operated as required. The filter efficiency for each of the three filters never dropped below 95%. A review of the data and logbooks confirm this.			

Question ID	DWMR1024001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			

Question:

Did records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Records did not confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection 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.

On October 15 and 16, 2025 there was a period of time (roughly 10 hours and 10 minutes) where no ammonia was being dosed for the secondary disinfection in order to achieve chloramination. As such there was a low TCR of 0.15 mg/L.

This occurred after a third party contractor was onsite performing the annual flow meter calibrations. The flow meter that the ammonia pumps are paced to was not plugged back in to the SCADA after the calibration. Due to this, there was no flow registered for this part of the process and so the ammonia pumps never received the signal to run. As such, there were no alarms triggered from the chemical pumps that typically would have alarmed out notifying the operator of either "failed to start", "failed to stop" or "pump not in auto".

Actions Required:

By March 31, 2026, provide to Provincial Officer Erin Markham to erin.markham2@ontario.ca and environment.ottawa@ontario.ca a written procedure for how situations such as this will be avoided in the future. This procedure should include details for how operators should monitor and review operations/trending before, during and after third party contractors or when internal staff perform work in a facility, including when taking any equipment offline. This should outline the importance of confirming systems are running as they should.

By April 30, 2026 please provide training records demonstrating that all staff have been trained on this above mentioned procedure.

RECOMMENDATIONS:

It is recommended to have "No flow" alarms on the either the treated water flow meter (ex. when high lifts are running), or on the Ammonia chemical pumps in order to notify operators that a portion of the treatment system may not be running while water is moving to the next part of the process.

It was noted that the ammonia chemical pumps, once both have experienced one of the current alarms, will alarm out but not shut down the plant and so water can continue to be sent to the distribution without ammonia being dosed. As this is part of the treatment system in place to achieve secondary disinfection, alarms from the ammonia pumps should shut down the high lifts.

Drinking-water systems using only chloramination as a secondary disinfection, where addition

of ammonia is properly adjusted as required, would not show any free chlorine residual in tests of distribution system samples. For such systems the measurement of total chlorine residual only would be adequate to represent the value of combined chlorine residual.

However, it is recommended that a free chlorine analyzer be added to the high lift area in order to monitor the free chlorine leaving the plant so that combined chlorine entering the distribution can be properly monitored.

Question ID	DWMR1033001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-2 (3); SDWA O. Reg. 170/03 7-2 (4);			
Question: Was secondary disinfectant residual tested as required for the large municipal residential distribution system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Secondary disinfectant residual was tested as required. There is an online total chlorine residual analyzer at the sewage plant to monitor the secondary residual in the distribution system. Operators go onsite daily to test for free chlorine at the same location using the desktop analyzer in the sewage plant lab. A new desktop analyzer was purchased as the previous unit was reported to be unreliable and there were concerns raised as to whether readings stored in the machine were being erased. It is set up so that no readings stored in the machine can be deleted except by the ORO who has a log-in password to the machine. The readings appear to have the correct date and time and review of the stored readings compared to the recorded readings on operational sheets confirm it is working consistently and being used as required. When the concerns were initially raised and the situation reviewed, it was stated by the owner that the ORO or Supervisor would be reviewing the data log in the desktop analyzer and comparing to what was recorded on the log sheets. Records should be made of these reviews in the logbooks.			

Question ID	DWMR1030001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-2 (1); SDWA O. Reg. 170/03 7-2 (2);			
Question: Was primary disinfection chlorine monitoring being conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit or at/near a location where the intended CT had just been achieved?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Primary disinfection chlorine monitoring was conducted as required.			

Chlorine is dosed at the beginning of clearwell 1 and Ammonia is added after clearwell 1 and before clearwell 2. As such, primary disinfection is monitored by an online free chlorine analyzer at the end of Clearwell 1, which is representative of where the CT is achieved.

Operators calculate CT manually once a week using real time values. These calculations are kept in a binder onsite. Review of this binder during the inspection confirmed CT was calculated consistently and was sufficient at all times. The finished water free chlorine residual has alarm set points of LO 1.25 and LOW 1.30 mg/L. Both of which alarm and shut down the plant. These are set to be above the minimum required chlorine residual to achieve CT which is 1.2 mg/L as per the Technical Memorandum completed by J.L.Richards RE: CT Disinfection and Storage Review.

The lowest primary free chlorine residual recorded during the inspection period was 1.34 mg/L on November 15, 2025.

It should be noted that clearwell 1 is scheduled to be replaced in the future and Clearwell #2 will be used for achieving CT. The free chlorine analyzer will be moved from the end of clearwell #1 to the end of clearwell #2 and it will be operated in such a way to ensure CT is maintained.

Question ID	DWMR1032001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-3 (2);			
Question: If the drinking water system obtained water from a surface water source and provided filtration, was continuous monitoring of each filter effluent line performed for turbidity?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Continuous monitoring of each filter effluent line was performed for turbidity. There are continuous online turbidimeters at the effluent line of each filter. The values are recorded on the SCADA and the daily print out includes the Max for each day along with filter efficiency which are then recorded on the "Daily Trending Review" sheets. Trending is reviewed by operators daily. There is an SOP titled "PW-DWQMS-SOP2, Filter Effluent Turbidity Critical Limit Response Procedure". The critical limit is outlined as 0.30 NTU and it outlines how operators should respond to filter effluent turbidity alarms and how and when trends should be reviewed and recorded. The alarm setpoints on the SCADA reflect this limit.			

Question ID	DWMR1035001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)1-4;			

Question:

Were operators examining continuous monitoring test results and did they examine the results within 72 hours of the test?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Operators were examining continuous monitoring test results as required.

Trending is reviewed by staff daily with the on-call operators completing the reviews on weekends and holidays. Review of the operational sheets and logbooks confirmed this.

Question ID	DWMR1038001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)1-4;			
Question: Was continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency and recording data with the prescribed format?			
Compliance Response(s)/Corrective Action(s)/Observation(s): 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 and recording data with the prescribed format.			

Question ID	DWMR1037001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);			
Question: Were 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, equipped with alarms or shut-off mechanisms that satisfied the standards described in Schedule 6?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All required continuous monitoring equipment utilized for sampling and testing were equipped with alarms or shut-off mechanisms that satisfied the standards. The primary disinfection critical limit (free chlorine residual) is outlined as 1.30 mg/L in the SOP titled "PW-DWQMS-SOP3, Primary Disinfection Critical Limit Response Procedure". This value was confirmed on the alarm set point is 1.30 and 1.25 mg/L (LOW and LO) with a delay of 20 seconds. The alarm set point for the finished water total chlorine leaving the plant is 0.75 mg/L LO and 3.10 mg/L High.			

It should be noted that the maximum chlorine residual at any time and at any location within the distribution system should not exceed 3.0 mg/L when measured as combined chlorine. Note: A combined chlorine residual of 3.0 mg/L is equivalent to the maximum acceptable concentration of 3.0 mg/L for chloramines allowed by the Ontario Drinking-Water Quality Standards.

The recommended optimum target for combined chlorine residual for systems designed to operate with chloramination is 1.0 mg/L at all locations within the distribution system to suppress bacterial activity that converts ammonia to nitrite and nitrate.

The distribution chloramine is monitored by an online total chlorine residual analyzer at the sewage plant and daily free chlorine grab samples are taken. The alarm setpoints for the total distribution chlorine are as follows; LOLO - 0.50 mg/L, LO - 0.80 mg/L, HI - 2.10 mg/L and HIHI - 2.50 mg/L.

It should be noted that the SOP mentioned above outlines the ideal residual chlorine level at the point of entry to the distribution system is generally between 1.80 and 2.20 mg/L and that the ideal residual in the distribution system is 1.0 mg/L.

RECOMMENDATION:

The alarm setpoints for treated water leaving the plant, distribution chlorine low should be set in accordance with this SOP.

Additionally, the maximum TCR leaving the water treatment plant (current alarm listed as 3.10 mg/L) should be reviewed and adjusted with the maximum chloramines of 3.0 mg/L in mind.

Question ID	DWMR1040001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)1-4; SDWA O. Reg. 170/03 6-5 (1)5-10;</p>			
<p>Question: Were all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): All continuous analysers were calibrated, maintained, and operated as required.</p> <p>A review of SOPs state that the turbidity and chlorine analyzers are to be cross referenced and calibrated (as needed) manually by staff monthly. These checks are to be recorded on the maintenance sheet. Review of these sheets confirms that checks were done at least monthly if not more. Pocket colorimeters were also checked with the standards monthly and results of this were recorded and filed in the appropriate locations.</p> <p>They confirmed that the calibrations are completed based on the regulation, +/- 5 %.</p>			

Question ID	DWMR1108001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 6-5 (1)5-10; SDWA O. Reg. 170/03 6-5 (1.1);			
Question: Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by O. Reg. 170/03, Municipal Drinking Water Licence, Drinking Water Works Permit, or order triggered an alarm or an automatic shut-off, did a qualified person respond as required and take appropriate actions?			
Compliance Response(s)/Corrective Action(s)/Observation(s): A qualified person responded as required and took appropriate actions. A review of log books and records confirmed that operators responded to alarms in a timely manner.			

Question ID	DWMR1099001	Question Type	Information
Legislative Requirement(s): Not Applicable			
Question: Do records show that water provided by the drinking water system met the Ontario Drinking Water Quality Standards?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Records showed that not all water sample results met the Ontario Drinking Water Quality Standards. A Lead sample from the distribution (Hydrant #185) taken on September 15, 2025 came back with a result of 0.0268 mg/L which exceeds the 0.01 mg/L limit outlined in Ontario Regulation 169. Proper corrective actions were taken and no other exceedances of the drinking water quality standards occurred during the inspection period. No actions required at this time other than to ensure the corrosion control plan is continued to be followed.			

Question ID	DWMR1083001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 10-3;			
Question: Were treated microbiological sampling requirements prescribed by Schedule 10-3 of O. Reg. 170/03 for large municipal residential systems met?			

<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Treated microbiological sampling requirements were met.</p> <p>Review of the sample results confirm the requirements were met.</p>
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Question ID	DWMMR1081001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 10-2 (1); SDWA O. Reg. 170/03 10-2 (2); SDWA O. Reg. 170/03 10-2 (3);</p>			
<p>Question: Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Distribution microbiological sampling requirements were met.</p> <p>The population is roughly 9,629 people, as such the required number of samples per month is 17 which would be roughly 4.25 samples per week and at least one of those weekly samples to include HPC. A review of their samples confirmed that there were typically 6 samples a week and 3 of those were tested for HPC.</p> <p>As such, this requirement had been met.</p>			

Question ID	DWMMR1096001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 6-3 (1);</p>			
<p>Question: Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Records confirmed that chlorine residual tests were conducted as required.</p> <p>Chain of custody's for the inspection period were reviewed which confirmed that chlorine residual tests were conducted at the same time and location of microbiological samples.</p>			

Question ID	DWMMR1084001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 13-2;</p>			
<p>Question: Were inorganic parameter sampling requirements prescribed by Schedule 13-2 of O. Reg. 170/03 met?</p>			

Compliance Response(s)/Corrective Action(s)/Observation(s):

Inorganic parameter sampling requirements were met.

Schedule 13-2.(1) of O. Reg. 170/03 outlines that the owner of a large municipal residential system and the operating authority for the system shall ensure that at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water.

Records confirm that the most recent treated water sample taken and tested for inorganic parameters was January 14, 2025. The sample prior to this was taken January 23, 2024.

This confirms all inorganic water quality monitoring requirements have been met.

Question ID	DWMR1085001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 13-4 (1); SDWA O. Reg. 170/03 13-4 (2); SDWA O. Reg. 170/03 13-4 (3);</p>			
<p>Question: Were organic parameter sampling requirements prescribed by Schedule 13-4 of O. Reg. 170/03 met?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Organic parameter sampling requirements were met.</p> <p>Schedule 13-4.(1) of O. Reg. 170/03 outlines that the owner of a large municipal residential system and the operating authority for the system shall ensure that at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water.</p> <p>Records confirm that the most recent treated water sample taken and tested for organic parameters was January 14, 2025. The sample prior to this was taken January 23, 2024.</p> <p>This confirms all organic water quality monitoring requirements have been met.</p>			

Question ID	DWMR1086001	Question Type	Legislative
<p>Legislative Requirement(s): 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);</p>			
<p>Question: Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Haloacetic acid sampling requirements were met.</p>			

As per O. Reg. 170/03 Schedule 13: 13-6.1

(1) The owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's 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.

(2) The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for haloacetic acids.

Sampling records indicate that during the inspection period samples were collected from the distribution system quarterly on the following dates and tested for haloacetic acids;

January 15 - 18.3 ug/L
 April 15 - 26.3 ug/L
 July 21 - 40.3 ug/L
 October 14 - 32.4 ug/L

The Running Annual Average (RAA) is 29.33 ug/L which is below the limit of 80 ug/L.

This sampling was conducted within the required frequency.

Question ID	DWMR1087001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 13-6 (1); SDWA O. Reg. 170/03 13-6 (2); SDWA O. Reg. 170/03 13-6 (3); SDWA O. Reg. 170/03 13-6 (4); SDWA O. Reg. 170/03 13-6 (5); SDWA O. Reg. 170/03 13-6 (6);</p>			
<p>Question: Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Trihalomethane sampling requirements were met.</p> <p>As per O. Reg. 170/03 Schedule 13: 13-6.</p> <p>(1) The owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes.</p> <p>(2) The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken under subsection (1) is tested for trihalomethanes.</p>			

Sampling records indicate that during the inspection period samples were collected from the distribution system quarterly on the following dates and tested for trihalomethanes;

January 14 - 31 ug/L
April 15 - 32 ug/L
July 21 - 53 ug/L
October 14 - 45 ug/L

The Running Annual Average (RAA) is 40.3 ug/L which is below the limit of 100 ug/L.

This sampling was conducted within the required frequency.

Question ID	DWMR1088001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 13-7;			
Question: Were nitrate/nitrite sampling requirements prescribed by Schedule 13-7 of O. Reg. 170/03 met?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Nitrate/nitrite sampling requirements were met. As per O. Reg. 170/03 Schedule 13: 13-7. The owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every three months and tested for nitrate and nitrite. Sampling records indicate that during the inspection period samples were collected from treated water quarterly on the following dates and tested for nitrate and nitrite. The results are below beside the dates for nitrate and nitrite respectively, reflected in mg/L. January 14 - 0.09 and 0.05 April 15 - 0.12 and 0.05 July 21 - 0.08 and 0.05 October 14 - 0.05 and 0.05 This sampling was conducted within the required frequency			

Question ID	DWMR1089001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 13-8;			
Question: Were sodium sampling requirements prescribed by Schedule 13-8 of O. Reg. 170/03 met?			

Compliance Response(s)/Corrective Action(s)/Observation(s):

Sodium sampling requirements were met.

As per O. Reg. 170/03 Schedule 13: 13-8. The owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 60 months and tested for sodium.

Sampling records indicate that treated water samples are collected annually and sampled for sodium. The most recent sodium sample was taken on January 14, 2025 (17.6 mg/L) and was previously completed on January 23, 2024.

This sampling frequency exceeds the minimum frequency required by the regulation.

Question ID	DWMR1091001	Question Type	Legislative
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Legislative Requirement(s):

SDWA | O. Reg. 170/03 | 7-4;

Question:

Where fluoridation is practiced, were fluoride sampling requirements prescribed by Schedule 7-4 of O. Reg. 170/03 met?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Fluoride sampling requirements were met.

As per Section 7-4 of O. Reg 170 "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."

At the high lift pump station there is an online fluoride analyzer and staff also take grab samples and test using a desktop analyzer, thereby meeting the above requirement.

Review of the data confirmed that all fluoride sampling was conducted within the required frequency via an online analyzer.

The highest residual during the inspection period was 0.90 mg/L on May 15 and 16th 2025. This is below the limit of 1.5 mg/L.

The average fluoride residual for the inspection period was 0.67 mg/L which is within the recommended concentration of 0.5 - 0.8 mg/L for the optimum level for control of tooth decay.

Question ID	DWMR1094001	Question Type	Legislative
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Legislative Requirement(s):

SDWA | 31 | (1);

Question:

Were water quality sampling requirements imposed by the Municipal Drinking Water Licence

and Drinking Water Works Permit met?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Water quality sampling requirements were met.

As per Schedule C of the MDWL number 170-101 there are the following sampling requirements imposed on the drinking water system;

Section 5 - Additional Sampling, Testing and Monitoring

Table 5 - Drinking Water Health Related Parameters

- Quarterly Samples of Benzo(a)pyrene at the entrance to the distribution system and Nitrosodimethylamine (NDMA) from the furthest point in the distribution system.

Table 6 - Drinking Water Non-Health Related Parameters

- Quarterly samples of Total Organic Carbon, Dissolved Organic Carbon and Colour from the entrance to the distribution system.

Table 7 - Environmental Discharge Parameters

- Monthly samples of suspended solids and total chlorine residual from the filter backwash wastewater residuals treatment and suspended solids from the Actiflo Residuals treatment.

Section 6 - Studies Required

Table 1 - Monitoring the Effectiveness of Preferred Measures

- Quarterly sampling of Lead and Alkalinity, four samples minimum annually from the distribution system and twelve samples minimum annually from residential and non-residential taps.

- Continuous monitoring of pH from the SCADA, four samples minimum annually from the distribution system, twelve samples minimum annually from the residential and non-residential taps.

- Orthophosphate and soda ash once per month from the distribution system, specifically from the sample tap located at the Town's Water Pollution Control Center.

Review of sample results confirmed that all of the above noted sampling was completed as required.

Question ID	DWMR1104001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 16-6 (1); SDWA O. Reg. 170/03 16-6 (2); SDWA O. Reg. 170/03 16-6 (3); SDWA O. Reg. 170/03 16-6 (3.1); SDWA O. Reg. 170/03 16-6 (3.2); SDWA O. Reg. 170/03 16-6 (4); SDWA O. Reg. 170/03 16-6 (5); SDWA O.</p>			

Reg. 170/03 | 16-6 | (6);

Question:

Were immediate verbal notification requirements for adverse water quality incidents met?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Immediate verbal notification requirements of adverse water quality incidents prescribed by Schedule 16-6 of O. Reg. 170/03 were not met.

For a period of about 3 hours and 21 minutes on October 16, 2025, the total chlorine residual (TCR) in the distribution was below 0.25 mg/L (lowest reading of 0.15 mg/L) due to the incident at the water plant resulting in no ammonia being dosed for a little over 10 hours over October 15 and 16, 2025. There was a free chlorine residual (FCR) taken and tested during this time with a result of 0.15 mg/L.

This is a violation of the obligation for the owner to ensure the equipment is operated such that at all times and in all locations, the combined chlorine residual (CCR) is never less than 0.25 mg/L, if the drinking water system provides chloramination as per Schedule 1-2(2)4 of O. Reg. 170/03.

There was a duty to report a CCR less than 0.25 mg/L during the multi-hour improper 'dosing event'. As the TCR is being used as the regulatory analyzer for the secondary disinfectant residual, this event should have been reported as an adverse water quality incident.

Actions Required:

Immediately report this incident to the Spills Action Center and the Health Unit.

By March 31, 2026 provide to Provincial Officer Erin Markham at erin.markham2@ontario.ca and to environment.ottawa@ontario.ca a written procedure outlining adverse water quality incidents, including low chlorine residuals both in the distribution system and at the treatment facility as per s.16-4. The procedure should include references to O. Reg 170 and applicable schedules (6, 7, 16, 17, etc.). There should be details of who must be reported to (Spills Action Center and the local Health Unit), how (verbal and written), and the timeline for reporting an incident (Section 16-4 of Schedule 16). The procedure should list the corrective actions that are to be taken and the timelines (Section 17-4 of Schedule 17). Also provide training records for all staff on this procedure.

OBSERVATIONS:

As the system operator is not taking grab samples for CCR (or TCR) as required by Schedule 7, they are relying on the continuous monitoring allowance provided by Schedule 6-4. Therefore, the owner/operator must follow the continuous monitoring reporting requirements in Schedule 16. As the ammonia dosing event lasted a little over ten hours, and the minimum monitoring frequency is 1 hour, they would need multiple residuals to evaluate compliance.

In this instance, the single 'daily' FCR grab sample result does not negate the fact that the TCR analyser was below 0.25 mg/L for multiple hours. Furthermore, as the TCR is being used as the regulatory analyser for the secondary disinfectant residual, this event should have been reported as an adverse water quality incident.

Despite the Procedure for Disinfection allowing a TCR analyzer to represent CCR, it is caveated by 'proper operation' of the ammonia dosing equipment.

RECOMMENDATION:

It is recommended to have both a FCR and TCR analyzer so that an accurate CCR can be determined leaving the plant and remain as daily FCR grabs in the distribution system at a minimum.

In the meantime, a recommendation for timely FCR and TCR grab samples during such events is warranted.

Question ID	DWMR1101001	Question Type	Legislative
<p>Legislative Requirement(s): SDWA O. Reg. 170/03 17-1; SDWA O. Reg. 170/03 17-10 (1); SDWA O. Reg. 170/03 17-11; SDWA O. Reg. 170/03 17-12; SDWA O. Reg. 170/03 17-13; SDWA O. Reg. 170/03 17-14; SDWA O. Reg. 170/03 17-2; SDWA O. Reg. 170/03 17-3; SDWA O. Reg. 170/03 17-4; SDWA O. Reg. 170/03 17-5; SDWA O. Reg. 170/03 17-6; SDWA O. Reg. 170/03 17-9;</p>			
<p>Question: For large municipal residential systems, were corrective actions, including any steps directed by the Medical Officer of Health, taken to address adverse conditions?</p>			
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Corrective actions per Schedule 17 of O. Reg. 170/03, including any other steps that were directed by the Medical Officer of Health, were not taken to address adverse conditions.</p> <p>The low chlorine in the distribution on October 16, 2025 was not reported to the Health Unit and so there were no corrective actions provided by the Medical Officer of Health.</p> <p>The operating authority should have done the following (in addition to reporting) as per Schedule 17 of O. Reg 170 section 17-4;</p> <ol style="list-style-type: none"> 1. Immediately flush the watermains and restore secondary disinfection to ensure that, <ol style="list-style-type: none"> i. a free chlorine residual of at least 0.05 milligrams per litre is achieved at all points in the affected parts of the distribution system, if the drinking water system provides chlorination and does not provide chloramination, or ii. a combined chlorine residual of at least 0.25 milligrams per litre is achieved at all points in 			

the affected parts of the distribution system, if the drinking water system provides chloramination.

2. Take such other steps as are directed by the medical officer of health.

Actions Required:

Refer to the Actions Required under question DWMR1104001 and complete any corrective actions (if any) as directed by the Health Unit upon reporting of the adverse water quality incident from October 16, 2025.

Question ID	DWMR1045001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the owner update the document describing the distribution components within 12 months of completion of alterations to the system in accordance with the Drinking Water Works Permit?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner had up-to-date documents describing the distribution components.			

Question ID	DWMR1060001	Question Type	Legislative
Legislative Requirement(s): SDWA 31 (1);			
Question: Did the operations and maintenance manual(s) meet the requirements of the Municipal Drinking Water Licence?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The operations and maintenance manual(s) met the requirements of the Municipal Drinking Water Licence. The Operations and Maintenance Manual was reviewed onsite and it encompassed all of the requirements outlined in Section 16 of Schedule B in the MDWL.			

Question ID	DWMR1062001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 7-5;			

<p>Question: Did records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03?</p>
<p>Compliance Response(s)/Corrective Action(s)/Observation(s): Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was done by a certified operator, water quality analyst, or person who met the requirements of Schedule 7-5 of O. Reg. 170/03. Operator certificates were reviewed along with logbooks and other records and it was confirmed that a certified operator performed these duties.</p>

Question ID	DWMR1071001	Question Type	BMP
Legislative Requirement(s): Not Applicable			
Question: Did the owner provide security measures to protect components of the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): The owner provided security measures to protect components of the drinking water system. The water treatment plant itself has cameras and a security gate. An operator in the building checks the camera footage and can remotely open the gate to allow access into the compound. The building is also locked and alarmed. The low lift pump station has a fence and locked gate surrounding, and the door to the building itself is locked and alarmed. The water tower has a fence and gate that are locked and the door into the tower itself is also locked and alarmed.			

Question ID	DWMR1073001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 23 (1);			
Question: Was an overall responsible operator designated for all subsystems which comprise the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): An overall responsible operator was designated for all subsystem. Daily log book entries for the water treatment plant have the ORO outlined on the first line and review of records and licenses confirm that these individuals were appropriately licensed			

to perform the duties of overall responsible operator.

Distribution operators record ORO on timesheets which are tracked daily.

Question ID	DWMR1074001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 25 (1);			
Question: Were operators-in-charge designated for all subsystems which comprise the drinking water system?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Operators-in-charge were designated for all subsystems. Daily log book entries have the OIC outlined on the first line and review of records and licenses confirm that these individuals were appropriately licensed to perform the duties of operator-in-charge.			

Question ID	DWMR1075001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 128/04 22;			
Question: Were all operators certified as required?			
Compliance Response(s)/Corrective Action(s)/Observation(s): All operators were certified as required. Licenses and logbooks were reviewed and confirmed that operators were certified as required.			

Question ID	DWMR1076001	Question Type	Legislative
Legislative Requirement(s): SDWA O. Reg. 170/03 1-2 (2);			
Question: Were adjustments to the treatment equipment only made by certified operators?			
Compliance Response(s)/Corrective Action(s)/Observation(s): Adjustments to the treatment equipment were only made by certified operators.			

APPENDIX A
STAKEHOLDER SUPPORT

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

**DRINKING WATER LICENCE AND
WORKS PERMIT**



DRINKING WATER WORKS PERMIT

Permit Number: 170-201

Issue Number: 3

Pursuant to the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 to:

Arnprior, The Corporation of the Town of

105 Elgin St
Arnprior, ON K7S 0A8

For the following municipal residential drinking water system:

Arnprior Drinking Water System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system
Schedule D	Process Flow Diagrams

Upon the effective date of this drinking water works permit #170-201, all previously issued versions of permit #170-201 are revoked and replaced by this permit.

DATED at TORONTO this 31st day of March, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act, 2002*

Schedule A: Drinking Water System Description

System Owner	Arnprior, The Corporation of the Town of
Permit Number	170-201
Drinking Water System Name	Arnprior Drinking Water System
Permit Effective Date	March 31, 2021

1.0 System Description

- 1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Arnprior Drinking Water System** consists of 1 drinking water treatment plant serving approximately a population of 8,795. The source is the Madawaska River. This system can be categorized as a conventional coagulation, flocculation, clarification, and filtration facility, with the chemically assisted clarification process being a two-train proprietary package unit. There are three dual-media filters; optional powdered activated and prechlorination systems, as well as full-time chlorination, fluoridation, soda ash and ammonia addition. Ammonia is added to produce chloramines for secondary disinfection; added when the treated water is pumped from clear wells to the distribution system and elevated water storage tank. There is approximately 57.8 km of distribution watermain.

Treatment Plant

Name	Arnprior Water Filtration Plant
Street Address	71 James Street, Arnprior Town, County of Renfrew
UTM Coordinates	NAD83, Zone 18, Easting: 394000 Northing: 5031220
System Type	Treatment and Distribution
Notes	a main building housing the treatment units and control, testing and monitoring equipment

Surface Water Supply

Intake Crib

Description	Concrete intake structure, pipe, screen,
Equipment	500 mm diameter intake pipe
Location	Located approximately 10m from the west riverbank, Madawaska River
Notes	

Low Lift Works

Wet Well

Description	33 m ³ (3 m x 3.2 m x 3.4 m deep) wet well, with three (3) low lift pumps.
Notes	Mesh intake screen

Low Lift Pumps

Description	A raw water low lift pumping station
Equipment	Two (2) vertical turbine and one (1) centrifugal raw water pumps each rated at 11,000 m ³ /d at a total dynamic head (TDH) of 25 m; one (1) duty and two (2) standby
Notes	Pumps convey raw water through a 400 mm raw watermain into the water treatment plant. Turbidity and pH analyzers, coagulant and prechlorination injection points, and two (2) 350 mm flow transmitters are installed on this line prior to the flash mixing process. The flow elements are installed after the watermain splits to packaged coagulation, flocculation, clarification system.

Coagulation/Flocculation

Coagulation/Flocculation Facilities

Description	Proprietary package for coagulation, flocculation and clarification, consisting of two (2) ballasted flocculation water treatment trains, complete with concrete tankage, each rated at a nominal capacity of 11,000 m ³ /day and each train consisting of the following:
Equipment (on each train)	one (1) automatically operated raw water inlet valve;
	one (1) flash mix tank having approximate inside dimensions of 1.1 m by 1.1 m by 3.6 m top water level, and working volume of approximately 4.4 m ³ , equipped with a mechanical mixer;
	one (1) coagulation tank having approximate inside dimensions of 2.5 m by 1.8 m by 3.6 m top water level, and working volume of approximately 16.2 m ³ , equipped with a mechanical mixer;
	one (1) injection tank having approximate inside dimensions of 2.5 m by 1.8 m by 3.6 m top water level, and working volume of approximately 16.2 m ³ , equipped with a mechanical mixer and polymer injection piping;
	one (1) maturation tank having approximate inside dimensions of 3.4 m by 3.9 m by 3.6 m top water level, and working volume of approximately 47.7 m ³ , equipped with a mechanical mixer and polymer injection piping;
	one (1) clarifier tank having approximate inside dimensions of 4.1 m by 3.9 m complete with a mechanical scraper and include settling module; one (1) recirculation pump for recycling settled sand and residuals to the hydrocyclones;
	one (1) hydrocyclone, complete with splitter box, for separating microsand and residuals and sending microsand back into the injection tank and to send the residuals to a common settling tank for both trains;
	one (1) clarified water turbidity monitor, one (1) raw water pH monitor and level monitors;
	a process control system;
Notes	

Filtration

Filters

Description	Three (3) dual media filters (two different filter designs)
Dimensions	Three (3) dual media (Sand/anthracite) filters with a total filter area of 97.5m ² (5.9m x 5.5m per filter, each with a maximum filtration rate of 7 m/hr (m ³ /m ² /hr) at maximum daily flow with one of the filters out of service); media consisting of a 400 mm sand layer and a 600 mm anthracite layer; a prefabricated underdrain system, complete with air scour
	An actuated valve on the outlet of each filter automatically controlled to maintain a constant filter flow rate; a flow meter, a differential pressure head loss transmitter, level transmitter and an on-line turbidimeter on each of the filters
	one (1) air blower rated for 500 L/s at 45 kPa
Notes	

Backwash Pumps

Description	A filter backwash system including a split case backwash pump drawing from the clearwell, with a butterfly valve providing a backup backwash system using distribution system pressure, requiring manual operation.
Capacity	Pump has a rated capacity of 34,350 m ³ /d at 15m TDH
Notes	Filtered water is conveyed through magnetic flow meters, combined into a common header and delivered to both clearwells (operating in series).

Backwash Residuals Treatment

Description	Filters backwash wastewater with polymer addition, the backwash residuals are clarified, the supernatant dechlorinated using sodium bisulphate and drained by gravity to the Madawaska River and sludge pumped to sanitary sewers.
Equipment	One (1) concrete residuals treatment tank with polymer addition, flocculators and gravity settling with an approximate nominal capacity of 63.0 m ³ (approx. 6.0 m x 3.0 m x 3.5 m top water level).
	Polymer system including a mixing tank and mixer, one (1) storage tank, secondary containment, and two (2) polymer chemical feed pumps (one duty and one standby) with automatic switchover;
	Two (2) mechanical flocculators to aid in mixing of polymer with residuals water in the settling tank;
	Dechlorination system for supernatant, comprised of two (2) sodium bisulphite chemical feed pumps (one duty, one standby) with automatic switchover, capable of supplying up to 0.5 L/min at a pressure of 100 kPa, with secondary containment for the sodium bisulphite supply; containers
	Three (3) sludge hoppers at tank bottom for sludge collection;
	Two (2) sludge pumps (one duty and one standby) each capable of delivering approximately 24 L/s at a TDH of 8.6 m to the sanitary forcemain;
Notes	An effluent sample is collected by Waterworks staff and analyzed for its chlorine sample, prior to being discharged to the Madawaska River.

Actiflo Settling Tanks Residuals Treatment

Description	Actiflo wastewater from the hydrocyclones is sent to a common residuals tank. This raw water residuals does not contain chlorine. The supernatant is drained by gravity to the Madawaska River and sludge to backwash sludge pumps and pumped to sanitary sewers.
Equipment	One concrete residuals treatment tank with gravity settling 6.0m (long), 3.0m (wide), 3.5m side water depth.
	Supernatant overflow weir and piping for discharge to storm sewer
	Three sludge sloped bottom hoppers
	Three automated sludge valves
	Two Actiflo/backwash sludge pumps
	A baffled sand settling box
Notes	A supernatant effluent sample is collected by Waterworks staff and analyzed for its total suspended solids prior to being discharged to the Madawaska River.

Clear Well and High Lift Works

Clear Wells

Description	Two clear wells in series
Dimensions	Volume of clearwell 1 is 2,167 m ³ .
	Volume of clearwell 2 is 1804m ³ .
Notes	Chlorine is added just prior to the first clearwell. Clearwell 1 consists of 2 cells divided by a concrete baffle wall and is hydraulically connected to Clearwell 2, which consists of a single cell divided by a concrete wall. Treated water passes through the clearwells and is conveyed to the high lift pump wet well. Soda ash for pH control is added in Clearwell 2.

High Lift Pump Station

Description	Pumps, meters and analyzers.
Equipment	Three (3) high lift pumps, each designed to deliver approximately 125 L/s at a TDH of 70m
	Finished water analyzers for Free and Total Chlorine, Turbidity, pH, and Fluoride, and a flow meter for treated water to the distribution system.
	400mm diameter treated water header connected to the distribution system
Notes	Pumps draw from second clearwell.

Emergency Power

Backup Power Supply

Description	400kW diesel engine standby power generator set located in a separate outdoor enclosure
Notes	With a 2,270 L double wall storage tank

Chemical Addition

Coagulant

Description	A liquid coagulant injection system.
Feed Point	Watermain immediately upstream of the flash mixing process.
Equipment	Two (2) coagulant chemical feed pumps (one duty and one standby) with automatic switchover.
	One (1) 22,700 L fibreglass reinforced plastic storage tank, with secondary containment;
	One (1) 8,000 L storage tank.
Notes	The system is sized for dosing aluminum chloride or other alternate liquid coagulant chemicals;

Polymer

Description	Polymer injection system
Feed Point	Three locations in the Actiflo Train, at the Injection tank, Maturation Tank and Hydrocyclones
Equipment	One (1) fibreglass mixing tank c/w mixer. Two (2) fibreglass storage tanks. Two Polymer Chemical Metering Pumps, one pump dedicated to each Actiflow unit.
Notes	Flow to each injection point is balanced using Rotameters in each dedicated line to the feed point.

Aqueous Ammonia

Description	Aqueous ammonia system
Feed Point	Between the clearwells
Equipment	Two (2) aqueous ammonia chemical feed pumps (one duty and one standby) with automatic switchover. flow meter between clearwells to pace ammonia; one (1) level sensor secondary containment for supply containers and day tank.
Notes	

Chlorine

Description	A disinfection system utilizing gas chlorination for prechlorination and primary disinfection.
Feed Point	Before the flash mixer for prechlorination and directly into the clearwell inlet for primary disinfection
Equipment	Chlorine gas storage facilities consisting of approximately twelve 68kg bottles stored on site, two scales (one duty and one standby) measuring the tared weight of chlorine the bottle; automatic switchover from duty to standby cylinder based on a preset bottle pressure Two (2) chlorinators (one duty, one standby), and using water from the distribution system as injection water, and an online chlorine residual analyzer to continuously monitor free chlorine residual in the treated water
Notes	

Hydrofluosilicic Acid

Description	A fluoridation storage and injection system
Feed Point	Effluent launders of the filters
Equipment	Two (2) double lined concrete bulk storage tanks with a total volume of 15.8 m ³ for the storage of hydrofluosilicic acid (HFS); One (1) magnetic drive chemical transfer pump to transfer HFS to a

	polyethylene day tank;
	One (1) diaphragm chemical feed pump.
Notes	

Soda Ash

Description	A hydrated soda ash feed system consisting of a 1000 kg bag dry chemical hopper station
Feed Point	Clearwell No. 2 influent line and alternate dosing point in the filter effluent launders
	one (1) volumetric screw feeder
	one (1) slurry mix tank and one day tank
	piping to convey the slurry to the Feed Points
	one (1) on-line pH analyzer for monitoring the pH of treated water
Notes	Used for pH adjustment. Provision for future volumetric screw feeder and pretreatment pH adjustment.

Instrumentation and Control

SCADA System

Description	Motor control center, PLC and SCADA to control and monitor plant process equipment, raw water, filtered water, backwash water and treated water flow meters including all related piping, electrical and mechanical works, plumbing and ventilation, yard piping, instrumentation and control and metering equipment required for a fully operable Water Filtration Plant
Notes	System control with data acquisition including various on-line analyzers and monitors, including the following regulatory equipment: <ul style="list-style-type: none"> - Turbidity Analyzers – Filter 1, 2 & 3 effluent - Free Cl Analyzer – Clearwell #1 effluent - Flow meter – Between Clearwell #1 & 2 - Level Monitor – Clearwell #1 & 2 - pH Analyzer – Clearwell #2 effluent Treated water - Fluoride Analyzer – Treated water - Total Cl Analyzer – Treated water - Flow meter – Treated water - Pressure Sensor – high lift discharge - Flow meter – raw water

Additional Instrumentation Supporting Regulatory Compliance

Description	Additional instrumentation supporting regulatory compliance.
Notes	<ul style="list-style-type: none"> - pH and temperature meter – Lab equipment (CT calculation) - Spectrophotometer – Lab Equipment - Turbidity analyzer – Lab Equipment

Elevated Storage Tanks

Elevated water tower

Location	433 Hartney Street, Arnprior, Ontario
UTM Coordinates	
Description	2,727 m ³ elevated composite water storage tank
Dimensions	2,727 m ³
Equipment	NA
Notes	

Watermains

1.2 Watermains within the distribution system comprise:

1.2.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains	
Column 1 Document or File Name	Column 2 Date
Arnprior Water Distribution System Map	October 2020

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

1.2.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	Arnprior, The Corporation of the Town of
Permit Number	170-201
Drinking Water System Name	Arnprior Drinking Water System
Permit Effective Date	March 31, 2021

1.0 Applicability

- 1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #170-101.
- 1.2 The definitions and conditions of licence #170-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

- 2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence #170-101.
- 2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.
- 2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:
 - a) Until **August 30, 2021**, the ministry's Watermain Disinfection Procedure, dated November 2015. As of **August 31, 2021**, the ministry's Watermain Disinfection Procedure, dated August 1, 2020;
 - b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
 - c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
 - d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
 - e) AWWA C654 – Standard for Disinfection of Wells.
- 2.3.1 For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.
- 2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

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- 2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:
- 2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;
 - 2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermains; or
 - 2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermains which were not in service at the time of the issuance of the first drinking water works permit.
- 2.5 The notification required in condition 2.4 shall be submitted using the "Director Notification Form" published by the Ministry.
- 2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:
- 2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;
 - 2.6.2 Constitutes maintenance or repair of the drinking water system; or
 - 2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.
- 2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.
- 2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

- 3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner's behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:
- 3.1.1 The design of the watermain addition, modification, replacement or extension:
 - a) Has been prepared by a licensed engineering practitioner;
 - b) Has been designed only to transmit water and has not been designed to treat water;

- c) Satisfies the design criteria set out in the Ministry publication “Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012”, as amended from time to time; and
 - d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication “Design Guidelines for Drinking Water Systems, 2008”, as amended from time to time.
- 3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.
- 3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system’s ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.
- 3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.
- 3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.
- 3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.
- 3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.
- 3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.
- 3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:
- 3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;
 - 3.2.2 Has a nominal diameter greater than 750 mm;
 - 3.2.3 Results in the fragmentation of the drinking water system; or
 - 3.2.4 Connects to another drinking water system, unless:
 - a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner’s delegate of the drinking water system being connected to; and

- b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.
- 3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:
- 3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and
- 3.3.2 Retained for a period of ten (10) years by the owner.
- 3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:
- 3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
- 3.4.2 Constitutes maintenance or repair of the drinking water system.
- 3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.
- 3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.
- 3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:
- 3.7.1 inspected the replacement prior to it being put into service;
- 3.7.2 prepared a report confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. "Form 1 – Record of Watermains Authorized by a Future Alteration" (Form 1), Part 3, items No. 2, 3 and 4); and
- 3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,
- the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.
- 3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

- 4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:
- 4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:
 - a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.1.1 b) shall be submitted using the "Director Notification Form" published by the Ministry
 - 4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;
 - 4.1.3 SCADA system software or programming that:
 - a) Measures, monitors or reports on a regulated parameter;
 - b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
 - c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;
 - 4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;
 - 4.1.5 Spill containment works; or,
 - 4.1.6 Coarse screens and fine screens
- 4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:
- 4.2.1 Treated water pumps, pressure tanks, and associated equipment;
 - 4.2.2 Raw water pumps and process pumps in the treatment system;
 - 4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;
 - 4.2.4 Re-circulation devices within distribution system storage facilities;

- 4.2.5 In-line mixing equipment;
 - 4.2.6 Chemical metering pumps and chemical handling pumps;
 - 4.2.7 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,
 - 4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.
 - 4.2.9 Chemical injection points;
 - 4.2.10 Valves.
- 4.3 The drinking water system may be altered by replacing the following:
- 4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;
 - 4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.
 - 4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;
 - a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and
 - b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.
 - c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry.
- 4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:
- 4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;
 - 4.4.2 The bypassing or removal of any unit process within a treatment subsystem;
 - 4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;
 - 4.4.4 A deterioration in the quality of drinking water provided to consumers;

- 4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;
 - 4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or
 - 4.4.7 An adverse effect on the environment.
- 4.5 The owner shall 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.
- 4.6 The verifications and documentation required in condition 4.5 shall be:
- 4.6.1 Recorded on “Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System” published by the Ministry, prior to the modified or replaced components being placed into service; and
 - 4.6.2 Retained for a period of ten (10) years by the owner.
- 4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:
- 4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
 - 4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3
- 4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

- 5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:
- 5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;
 - 5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;
 - 5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;
 - 5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;

-
- 5.1.5 Maintenance welding stations;
 - 5.1.6 Minor painting operations used for maintenance purposes;
 - 5.1.7 Parts washers for maintenance shops;
 - 5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;
 - 5.1.9 Venting for activated carbon units for drinking water taste and odour control;
 - 5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;
 - 5.1.11 Venting for an ozone treatment unit;
 - 5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or
 - 5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.
- 5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.
- 5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.
- 5.4 The owner shall prepare an emission summary table for nitrogen oxides emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

- 5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:
- 5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;
 - 5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m³ as amended; and
 - 5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.

- 5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.
- 5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.
- 5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:
- 5.8.1 Recorded on "Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere", as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and
- 5.8.2 Retained for a period of ten (10) years by the owner.
- 5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:
- 5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or
- 5.9.2 Constitutes maintenance or repair of the drinking water system.
- 5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

- 6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:
- 6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;
- 6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and
- 6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

- 7.1 Not Applicable

8.0 Source Protection

- 8.1 Not Applicable

Schedule C: Authorization to Alter the Drinking Water System

System Owner	Arnprior, The Corporation of the Town of
Permit Number	170-201
Drinking Water System Name	Arnprior Drinking Water System
Permit Effective Date	March 31, 2021

1.0 General

1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents				
Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
1	May 19, 2016	Implementation of Corrosion Control Plan	Approved	Not Applicable

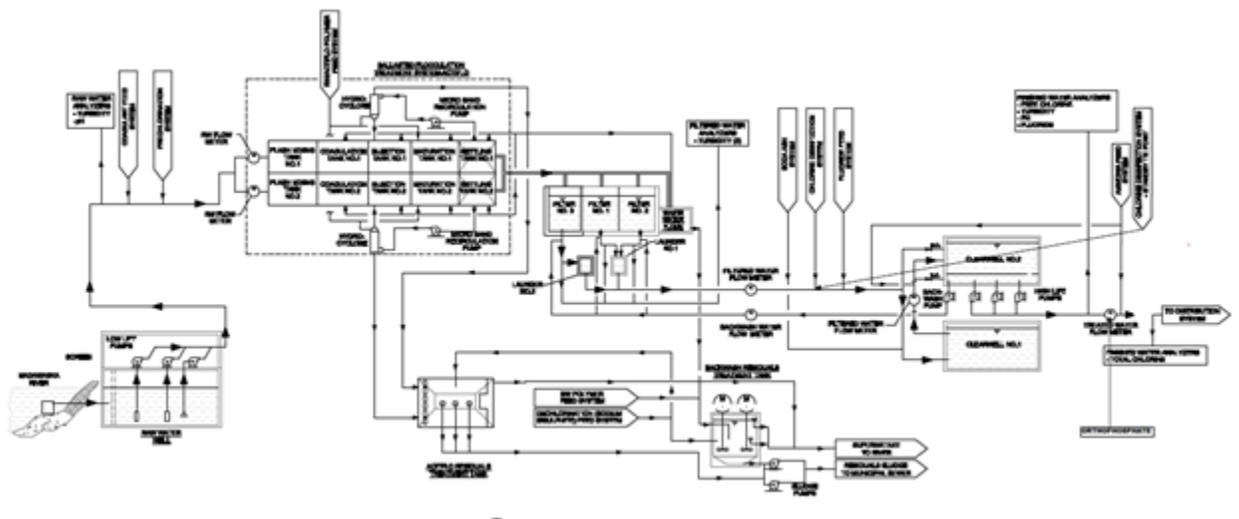
1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.

Schedule D: Process Flow Diagrams

System Owner	Arnprior, The Corporation of the Town of
Permit Number	170-201
Drinking Water System Name	Arnprior Drinking Water System
Permit Effective Date	March 31, 2021

1.0 Process Flow Diagrams

Arnprior Water Filtration Plant



[Source: 2 and 3 - Town of Arnprior DWQMS Operational Plan - Version 16 - March 13, 2020]

Note: this process flow diagram is for reference only, and represents a high level overview of the system as of March 13, 2020.

MUNICIPAL DRINKING WATER LICENCE

Licence Number: 170-101

Issue Number: 7

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this municipal drinking water licence under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

Arnprior, The Corporation of the Town of
105 Elgin St
Arnprior, ON K7S 0A8

For the following municipal residential drinking water system:

Arnprior Drinking Water System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements
Schedule E	Pathogen Log Removal/Inactivation Credits

Upon the effective date of this drinking water licence # 170-101, all previously issued versions of licence # 170-101 are revoked and replaced by this licence.

DATED at TORONTO this 31st day of March, 2021

Signature



Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	Arnprior, The Corporation of the Town of
Licence Number	170-101
Drinking Water System Name	Arnprior Drinking Water System
Licence Effective Date	March 31, 2021

1.0 Licence Information

Licence Issue Date	March 31, 2021
Licence Effective Date	March 31, 2021
Licence Expiry Date	March 31, 2026
Application for Licence Renewal Date	September 30, 2025

2.0 Incorporated Documents

The following documents are applicable to the above drinking water system and form part of this licence:

2.1 Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
Arnprior Drinking Water System	170-201	March 31, 2021

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
Madawaska River	4143-8ZDLMJ	October 23, 2012

3.0 Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	170-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	170-301A

4.0 Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
Walter E. Prentice Water Filtration Plant and Distribution System	Arnprior, The Corporation Of The Town Of	170-401	170-OA1

Schedule B: General Conditions

System Owner	Arnprior, The Corporation of the Town of
Licence Number	170-101
Drinking Water System Name	Arnprior Drinking Water System
Licence Effective Date	March 31, 2021

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

“**adverse effect**”, “**contaminant**” and “**natural environment**” shall have the same meanings as in the EPA;

“**alteration**” may include the following in respect of this drinking water system:

- (a) An addition to the system,
- (b) A modification of the system,
- (c) A replacement of part of the system, and
- (d) An extension of the system;

“**compound of concern**” means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged to the air from a component of the drinking water system in an amount that is not negligible;

“**CT**” means the CT Disinfection Concept, as described in subsection 3.1.1 of the Ministry’s Procedure for Disinfection of Drinking Water in Ontario, dated July 29 2016.

“**Director**” means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

“**drinking water works permit**” means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“**emission summary table**” means a table described in paragraph 14 of subsection 26 (1) of O. Reg. 419/05;

“**EPA**” means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

“**financial plan**” means the financial plan required by O. Reg. 453/07;

“**Harmful Algal Bloom (HAB)**” means an overgrowth of aquatic algal bacteria that produce or have the potential to produce toxins in the surrounding water, when the algal

cells are damaged or die. Such bacteria are harmful to people and animals and include microcystins produced by cyanobacterial blooms.

“**licence**” means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

“**Ministry**” means the Ontario Ministry of the Environment, Conservation and Parks;

“**operational plan**” means an operational plan developed in accordance with the Director’s Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

“**owner**” means the owner of the drinking water system as identified in Schedule A of this licence;

“**OWRA**” means the *Ontario Water Resources Act*, R.S.O. 1990, c. 0.40;

“**permit to take water**” means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

“**point of impingement**” has the same meaning as in section 2 of O. Reg. 419/05 under the EPA;

“**point of impingement limit**” means the appropriate standard from Schedule 2 or 3 of O. Reg. 419/05 under the EPA and if a standard is not provided for a compound of concern, the concentration set out for the compound of concern in the document titled “Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants”, as amended from time to time and published by the Ministry and available on a government of Ontario website;

“**licensed engineering practitioner**” means a person who holds a licence, limited licence or temporary licence under the Professional Engineers Act;

“**provincial officer**” means a provincial officer designated pursuant to section 8 of the SDWA;

“**publication NPC-300**” means the Ministry publication titled “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning” dated August 2013, as amended;

“**SCADA system**” means a supervisory control and data acquisition system used for process monitoring, automation, recording and/or reporting within the drinking water system;

“**SDWA**” means the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32;

“sensitive receptor” means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from a discharge to air from an emergency generator that is a component of the drinking water system, including one or a combination of:

- (a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
- (b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
- (c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
- (d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings).

“sub-system” has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts) under the SDWA;

“surface water” means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

“UV” means ultraviolet, as in ultraviolet light produced from an ultraviolet reactor.

2.0 Applicability

- 2.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

- 3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

- 4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

- 5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

- 6.1 At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Permit to Take Water and Drinking Water Works Permit

- 7.1 A permit to take water identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.
- 7.2 A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

8.0 Financial Plan

- 8.1 For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:
- 8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and
- 8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

- 9.1 Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- 9.1.1 The SDWA;
- 9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;
- 9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;
- 9.1.4 Any regulation made under the SDWA;
- 9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;
- 9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;
- 9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and

- 9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.
- 9.1.9 Any other technical bulletin or procedure issued by the Ministry from the most recent to the earliest.
- 9.2** If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.
- 9.3** The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:
- 9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and
- 9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.
- 9.4** For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

- 10.1** Nothing in this licence or the drinking water works permit shall be read as to permit:
- 10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or
- 10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 10.2** All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 10.3** Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

- 11.1 This licence is not transferable without the prior written consent of the Director.
- 11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.
- 11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

- 12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request.

13.0 Records Retention

- 13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 or section 13 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

- 14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF/372.
- 14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.
- 14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical and material used in the operation of the drinking water system that comes into contact with water within the system.
- 14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:
- 14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high density polyethylene (HDPE);
- 14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;

- 14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;
- 14.3.4 Gaskets that are made from NSF approved materials;
- 14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use that may come into contact with drinking water, but are not added directly to the drinking water; or
- 14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

- 15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.
- 15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within one year of the alteration being completed or placed into service.
- 15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a 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.

16.0 Operations and Maintenance Manual

- 16.1 An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.
- 16.2 The operations and maintenance manual or manuals, shall include at a minimum:
 - 16.2.1 The requirements of this licence and associated procedures;
 - 16.2.2 The requirements of the drinking water works permit for the drinking water system;
 - 16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system including where applicable:
 - a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions and other operating conditions, if applicable; and

- b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;
- 16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;
 - 16.2.5 Procedures for the operation and maintenance of monitoring equipment;
 - 16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;
 - 16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;
- 16.3** Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.
- 16.4** All of the procedures included or referenced within the operations and maintenance manual must be implemented.

Schedule C: System-Specific Conditions

System Owner	Arnprior, The Corporation of the Town of
Licence Number	170-101
Drinking Water System Name	Arnprior Drinking Water System
Licence Effective Date	March 31, 2021

1.0 System Performance

Rated Capacity

- 1.1** For each treatment subsystem listed in column 1 of Table 1, the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed the value identified as the rated capacity in column 2 of the same row.

Table 1: Rated Capacity	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m ³ /day)
Walter E. Prentice Water Filtration Plant and Distribution System	10,340

Maximum Flow Rates

- 1.2** For each treatment subsystem listed in column 1 of Table 2, the maximum flow rate of water that flows into a treatment subsystem component listed in column 2 shall not exceed the value listed in column 3 of the same row.

Table 2: Maximum Flow Rates		
Column 1 Treatment Subsystem Name	Column 2 Treatment Subsystem Component	Column 3 Maximum Flow Rate (L/s)
Not Applicable	Not Applicable	Not Applicable

- 1.3** Despite conditions 1.1 and 1.2, a treatment subsystem may be operated temporarily at a maximum daily volume and/or a maximum flow rate above the values set out in column 2 of Table 1 and column 3 of Table 2 respectively for the purposes of fighting a large fire or for the maintenance of the drinking water system.
- 1.4** Condition 1.3 does not authorize the discharge into the distribution system of any water that does not meet all of the requirements of this licence and all other regulatory requirements, including compliance with the Ontario Drinking Water Quality Standards.

Residuals Management

- 1.5** In respect of an effluent discharged into the natural environment from a treatment subsystem or treatment subsystem component listed in column 1 of Table 3:
- 1.5.1 The annual average concentration of a test parameter identified in column 2 shall:
- not exceed the value in column 3 of the same row; and
 - be calculated at least once monthly as the running annual average based on the previous twelve months of results;
- 1.5.2 Where the average concentration of a test parameter identified in column 2 exceeds the value in column 3, the concentration shall be reported to the local Ministry district office within 72 hours of receipt of the last lab result used in the calculation;
- 1.5.3 The maximum concentration of a test parameter identified in column 2 shall not exceed the value in column 4 of the same row;
- 1.5.4 Where the maximum concentration of a test parameter identified in column 2 exceeds the value in column 4, the discharge shall be reported in accordance with s.13.2 of O. Reg. 675.98 and recorded in accordance with s.12.2 of O. Reg. 675.98 within 24 hours of receipt of the lab result; and,
- 1.5.5 The test parameters listed in column 2 of Table 3 shall be sampled in accordance with conditions 5.2, 5.3 and 5.4 of Schedule C in this Licence.

Table 3: Residuals Management			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Annual Average Concentration (mg/L)	Column 4 Maximum Concentration (mg/L)
Walter E. Prentice Water Filtration Plant and Distribution System – Filter backwash wastewater Residuals treatment	Annual average concentration of suspended solids in the effluent discharged from the filters backwash wastewater facilities	25	25
	Chlorine Residual	0.02	
Walter E. Prentice Water Filtration Plant and Distribution System – Actiflo Residuals treatment	Annual average concentration of suspended solids in the effluent discharged from the Actiflo Residuals treatment tank	25	25

UV Disinfection Equipment Performance

- 1.6** For each treatment subsystem or treatment subsystem component listed in column 1 of Table 4, and while directing water to the distribution system and being used to meet pathogen log removal/inactivation credits specified in Schedule E:
- 1.6.1 The UV disinfection equipment shall be operated within the validated limits for the equipment at all times such that a continuous pass-through UV dose is maintained throughout the life time of the UV lamp(s) that is at least the minimum continuous pass-through UV dose set out in column 2 of the same row
- 1.6.2 In addition to any other sampling, analysis and recording that may be required, the ultraviolet light disinfection equipment shall test for the test parameters set out in column 4 of the same row at a testing frequency of once every five (5) minutes or less and record the test data at a recording frequency of once every four (4) hours or less;
- 1.6.3 If there is a UV disinfection equipment alarm signaling that the disinfection equipment is malfunctioning, has lost power, or is not providing the appropriate level of disinfection the test parameters set out in column 4 of the same row shall be recorded at a recording frequency of once every five minutes or less until the alarm condition has been corrected;
- 1.6.4 A monthly summary report shall be prepared at the end of each calendar month which sets out the time, date and duration of each UV equipment alarm described in condition 1.6.3, the volume of water treated during each alarm period and the actions taken by the operating authority to correct the alarm situation;

Table 4: UV Disinfection Equipment			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm²)	Column 3 Control Strategy	Column 4 Test Parameter
Not applicable	Not applicable	Not applicable	Not applicable

2.0 Flow Measurement and Recording Requirements

- 2.1** For each treatment subsystem identified in column 1 of Table 1 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for:
- 2.1.1 The flow rate (L/s) and daily volume (m³/day) of treated water that flows from the treatment subsystem to the distribution system.
- 2.1.2 The flow rate (L/s) and daily volume (m³/day) of water that flows into the treatment subsystem.

- 2.2** For each treatment subsystem component identified in column 2 of Table 2 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of water that flows into the treatment subsystem component.
- 2.3** Where a rated capacity from Table 1 or a maximum flow rate from Table 2 is exceeded, the following shall be recorded:
- 2.3.1 The difference between the measured amount and the applicable rated capacity or maximum flow rate specified in Table 1 or Table 2;
 - 2.3.2 The time and date of the measurement;
 - 2.3.3 The reason for the exceedance; and
 - 2.3.4 The duration of time that lapses between the applicable rated capacity or maximum flow rate first being exceeded and the next measurement where the applicable rated capacity or maximum flow rate is no longer exceeded.

3.0 Calibration of Flow Measuring Devices

- 3.1** All flow measuring devices that are required by regulation, by a condition in the drinking water works permit 170-201, or by a condition otherwise imposed by the Ministry, shall be checked and where necessary calibrated in accordance with the manufacturer's instructions.
- 3.2** If the manufacturer's instructions do not indicate how often to check and calibrate a flow measuring device, the equipment shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation.
- 3.2.1 For greater certainty, if condition 3.2 applies, the equipment shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

4.0 Calibration of CT Monitoring System

- 4.1** Any measuring instrumentation that forms part of the monitoring system for CT shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation, or more frequently in accordance with the manufacturer's instructions.
- 4.1.1 For greater certainty, if condition 4.1 applies, the instrumentation shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

5.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

- 5.1** For each treatment subsystem or treatment subsystem component identified in column 1 of Tables 5 and 6 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 5: Drinking Water Health Related Parameters			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Walter E. Prentice Water Filtration Plant and Distribution System	Benzo(a)pyrene	Quarterly	Point of entrance to distribution system
	Nitrosodimethylamine (NDMA)	Quarterly	Farthest point in the distribution system

Table 6: Drinking Water Non-Health Related Parameters			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Walter E. Prentice Water Filtration Plant and Distribution System	Total Organic Carbon	Quarterly	Entrance to Distribution System
	Dissolved Organic Carbon	Quarterly	Entrance to Distribution System
	Colour	Quarterly	Entrance to Distribution System

Environmental Discharge Parameters

- 5.2** For each treatment subsystem or treatment subsystem component identified in column 1 of Table 7 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 using the sample type identified in column 3 at the sampling frequency listed in column 4 and at the monitoring location listed in column 5 of the same row.

- 5.3** For the purposes of Table 7:

- 5.3.1** Manual Composite means the mean of at least three grab samples taken during a discharge event, with one sample being taken immediately following the commencement of the discharge event, one sample being taken approximately at the mid-point of the discharge event and one sample being taken immediately before the end of the discharge event; and

5.3.2 Automated Composite means samples must be taken during a discharge event by an automated sampler at a minimum sampling frequency of once per hour.

5.4 Any sampling, testing and monitoring for the test parameter Total Suspended Solids shall be performed in accordance with the requirements set out in the publication "Standard Methods for the Examination of Water and Wastewater", 23rd Edition, 2017, or as amended from time to time by more recently published editions.

Table 7: Environmental Discharge Parameters				
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sample Type	Column 4 Sampling Frequency	Column 5 Monitoring Location
Walter E. Prentice Water Filtration Plant and Distribution System – Filter backwash wastewater Residuals treatment	Suspended Solids (composite)	Composite	Monthly	Point of Discharge – Residue management supernatant discharge sampling port
	Total Chlorine Residual	Grab	Monthly	Point of Discharge – Residue management supernatant discharge sampling port
Walter E. Prentice Water Filtration Plant and Distribution System – Actiflo Residuals treatment	Suspended Solids (composite)	Composite	Monthly	Point of Discharge – Residue management supernatant discharge sampling port

5.5 Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:

5.5.1 The discharge of potable water from a watermain to a road or storm sewer;

5.5.2 The discharge of potable water from a water storage facility or pumping station:

- a) To a road or storm sewer; or
- b) To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.

5.5.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer;

5.5.4 The discharge of raw water from a groundwater well to the environment where if necessary, sediment and erosion control measures have been implemented; and

5.5.5 The discharge of raw water, potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.

- 5.5.6 The discharge of any excess water to a road, storm sewer or the environment, associated with the management of materials excavated as part of watermain construction or repair, where necessary sediment, erosion and environmental control measures have been implemented.

6.0 Studies Required

Harmful Algal Blooms

- 6.1** The owner shall develop and keep up to date a Harmful Algal Bloom monitoring, reporting and sampling plan, herein known as the “Plan”, to be implemented when a potential harmful algal bloom is suspected or present. The owner shall have the Plan in place on or before September 30, 2021.
- 6.1.1 The owner must have a copy of the Plan available onsite at the drinking water system, for inspection upon request by Ministry staff.
- 6.1.2 The owner must implement the Plan annually during the harmful algal bloom season, during but not limited to the warm seasonal period between June 1 and October 31 each year, or as otherwise directed by the Ministry or the Medical Officer of Health.
- 6.1.3 The owner must train all relevant drinking water system staff on the Plan prior to the beginning of each warm season, as described in Condition 6.1.2.
- 6.2** For clarity, a Harmful Algal Bloom is considered suspected or occurring when:
- 6.2.1 the owner or operating authority has observed an algal bloom:
- a) near the shoreline at or near the source water intake(s) described in drinking water works permit #xxx, or
 - b) where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or
 - c) within a circle that has a radius, measured from the intake, equal to the distance from the intake to the farthest edge of IPZ-2.
- 6.2.2 microcystin has been detected in a raw or treated water sample; and/or,
- 6.2.3 the owner has received any form of notification related to an algal bloom from the Ministry, a Medical Officer of Health, or the public; or,
- 6.2.4 the presence of or identification of cyanobacteria has been determined through optical probes or other analytic techniques used by the drinking water system.
- 6.3** The Plan described in condition 6.1 must include, at a minimum:
- 6.3.1 details relating to visual monitoring for harmful algal blooms at or near the drinking water system intake(s),

-
- a) as described in drinking water works permit #xxx, or
 - b) where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or
 - c) within a circle that has a radius, measured from the intake, equal to the distance from the intake to the farthest edge of IPZ-2.
- 6.3.2 details relating to visual monitoring of shoreline; this is applicable to drinking water systems where the proximity of the intake(s) may be of concern.
- 6.3.3 details relating to reporting the observed or suspected harmful algal bloom, as described in section 6.2:
- a) to the Overall Responsible Operator(s) and/or Operator(s)-in-Charge if the blooms have been observed or suspected by a duty operator; the Plan shall include wording that directs relevant drinking water staff to follow the instructions provided by the Overall Responsible Operator(s) or the Operator(s)-in-Charge;
 - b) to the medical officer of health; and
 - c) to the local MECP representative and the Ministry's Spills Action Centre.,
- 6.3.4 a sampling plan, including the identification of sample location(s) and frequencies that at a minimum match those described in condition 6.4.
- 6.3.5 triggers that may increase the required sampling frequency;
- 6.3.6 up-to-date records that document staff training on the harmful algal bloom monitoring, reporting, and sampling procedures.
- 6.4** Any water samples collected under Condition 6.3.4 must be:
- 6.4.1 collected, at a minimum, once per week, or as otherwise directed by the Ministry or the medical officer of health;
 - 6.4.2 collected prior to any treatment, if the sample is taken from raw water;
 - 6.4.3 collected at the point of entry into the distribution system, if the sample is taken from treated water;
 - 6.4.4 collected from the shoreline by the drinking water system, if applicable based on Condition 6.3.1;
 - 6.4.5 submitted to a laboratory licensed to perform ELISA testing for total microcystin;
 - 6.4.6 repeatedly collected until 3 consecutive samples have shown non-detection of microcystin and the algal bloom is no longer suspected or visually observed.

6.5 Corrosion Control Implementation

- 6.5.1 The Owner shall implement the Town of Arnprior Corrosion Control Plan dated November 3, 2014 and as amended on December 8, 2016 monitor the effectiveness of the corrosion control measures.
- 6.5.2 The Owner shall prepare an Evaluation Report to assess the effectiveness of the corrosion control measures. The report shall contain the following information in 5.1.3 – 5.1.7, where applicable:
- 6.5.3 A list of all lead results and a summary of any key corrosion control parameter measurements at the point treated water enters the distribution system and premise plumbing with the frequencies identified in Table 1:

Table 1: Monitoring the Effectiveness of Preferred Measures			
Column 1 Parameters	Column 2 Point of Entry	Column 3 Distribution System	Column 4 Residential and Non-Residential Taps
Lead	Quarterly	4 samples minimum, annually	12 samples minimum, annually
Alkalinity	Quarterly	4 samples minimum, annually	12 samples minimum, annually
pH	SCADA (continuous)	4 samples minimum, annually	12 samples minimum, annually
Orthophosphate (and soda ash)	-	1/month ¹	As per Corrosion Control Plan
Other Parameters in Table 6.1 the Ministry's Guidance Document for Corrosion Control Monitoring, dated December 2009.	-	-	-

¹ - Orthophosphate samples to be collected at the Towns Water Pollution Control Centre sample tap.

- 6.5.4 A technical evaluation of the effectiveness of corrosion control measures including:
- a) Any key milestones of implementation, including equipment malfunction or upset conditions;
 - b) The ability to maintain operating conditions and inhibitor concentrations, in the distribution system and premise plumbing; and
 - c) The ability to achieve reduction in lead levels and other corrosion related parameters in the distribution system and premise plumbing.
- 6.5.5 A summary of lead levels and other metals monitored at the following locations, since implementation of corrosion control, and comparison to pre-implementation levels:
- a) Distribution system;
 - b) Residential plumbing; and,
 - c) Non-residential plumbing.

- 6.5.6 An evaluation of secondary impacts as a result of corrosion control implementation of corrosion control measures, including any:
- a) Customer feedback or water quality complaints, since implementation of corrosion control, with analysis of reasons;
 - b) Impacts on secondary disinfection, including biofilm formation; and,
 - c) Impacts on wastewater treatment plants receiving treated water from the owner, including estimates of increases in phosphorous loadings to the receiver, and comparison to effluent limits.
- 6.5.7 A summary of results of all other aspects of the Owner's lead mitigation strategy including:
- a) Lead service line replacement on public and private property;
 - b) Outreach and education, especially to populations vulnerable to lead in drinking water;
 - c) Faucet filter program, and,
 - d) Involvement of public health authorities.
- 6.6** The Corrosion Control Evaluation Report outlined in 5.1.2 shall cover each calendar year, and shall be submitted to the Director by March 31st, annually.
- 6.7** The lead sampling data shall be submitted every 6 months to the Ottawa District Office, no later than 30 days following the previous bi-annual sampling periods.

7.0 Source Protection

- 7.1** The owner of the drinking water system shall implement risk management measures, as appropriate, to manage any potential threat to drinking water that results from the operation of the drinking water system.
- 7.2** The owner of the system shall notify the Director in writing within thirty (30) days of any approved changes to an applicable source protection plan that impact the assessed threat level of a fuel oil system identified in Schedule A of drinking water works permit.
- 7.3** The notification required in condition 7.2 shall include:
- 7.3.1 A description of the changes and their impact on the assessed threat level of the fuel oil system(s); and,
 - 7.3.2 A timeline for re-assessing the threat level and providing the results of the assessment to the Director.

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	Arnprior, The Corporation of the Town of
Licence Number	170-101
Drinking Water System Name	Arnprior Drinking Water System
Licence Effective Date	March 31, 2021

No relief from regulatory requirements is authorized by the Director under section 46 of the SDWA in respect of the drinking water system.

Schedule E: Pathogen Log Removal/Inactivation Credits

System Owner	Arnprior, The Corporation of the Town of
Licence Number	170-101
Drinking Water System Name	Arnprior Drinking Water System
Licence Effective Date	March 31, 2021

1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

Arnprior Water Filtration Plant

Madawaska River [SURFACE WATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts ^a	Viruses ^b
Arnprior Water Filtration Plant	2	3	4

^a At least 0.5 log inactivation of Giardia shall be achieved by the disinfection portion of the overall water treatment process.

^b At least 2 log inactivation of viruses shall be achieved by disinfection.

Log Removal/Inactivation Credits Assigned ^c	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Conventional Filtration	2	2.5	2
Chlorination [CT: Clearwell]	-	0.5+	2+

^c Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Conventional Filtration	<ol style="list-style-type: none"> 1. A chemical coagulant shall be used at all times when the treatment plant is in operation; 2. Chemical dosages shall be monitored and adjusted in response to variations in raw water quality; 3. Effective backwash procedures shall be maintained including filter-to-waste or an equivalent procedure during filter ripening to ensure that effluent turbidity requirements are met at all times; 4. Filtrate turbidity shall be continuously monitored from each filter; and 5. Performance criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements each month shall be met for each filter.
Chlorination	<ol style="list-style-type: none"> 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; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	