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**Sent by Email: spatterson@deepriver.ca**

The Corporation of the Town of Deep River
100 Deep River Road
Deep River, Ontario
K0J 1P0

Attn: Sean Patterson, CAO

Dear Sean:

Re: 2024-2025 Inspection Report

The enclosed report documents findings of the inspection that was performed at the Deep River drinking water system on January 21, 2025.

Section 19 of the Safe Drinking Water Act (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems. Please be aware that the Ministry has encouraged such individuals, particularly municipal councilors, to take steps to be better informed about the drinking water systems over which they have decision-making authority. These steps could include asking for a copy of this inspection report and a review of its findings. Further information about Section 19 can be found in "Taking Care of Your Drinking Water: A guide for members of Municipal Council" found under on the Ontario website at Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils | ontario .ca

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

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection,

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

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

If you have any questions or concerns regarding the rating, please contact Shannon Hamilton-Brown, Acting Water Compliance Supervisor, at (613) 808-4255.

Thank you for the assistance afforded to me during the conduct of the compliance assessment. If you have any questions regarding the content of the enclosed report, please do not hesitate to contact me.

Yours truly,

Karine Bourgon
Water Inspector
Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division
Ottawa District Office
Cell: 613-818-3667

Enclosure

ec: David Mccarthy, Infrastructure & Contract Manager, The Corporation of the Town of Deep River, dmccarthy@deepriver.ca
- Brad Sweet, Senior Operations Manager, OCWA, bsweet@ocwa.com
- Brenda Royce, Process & Compliance Technician, OCWA, broyce@ocwa.com
- 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

c: File SI-RE-DE-RI-540 (2024-25)

DEEP RIVER DRINKING WATER SYSTEM
Physical Address: 177 RIVER RD, , DEEP RIVER, ON

# INSPECTION REPORT

System Number: 220000923
Entity: CORPORATION OF THE TOWN OF DEEP RIVER
ONTARIO CLEAN WATER AGENCY
Inspection Start Date: January 21, 2025
Site Inspection Date: January 21, 2025
Inspection End Date: February 07, 2025
Inspected By: Karine Bourgon
Badge #: 2003

_____
(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 by the Corporation of the Town of Deep River and operated by Ontario Clean Water Agency (OCWA).

The system serves an estimated population of 4,175 and is categorized as a Large Municipal Residential System DWS. Information reviewed for this inspection covered the time period of January 01, 2024 to December 31, 2024.

The water compliance officer (WCO) met with Brenda Royce, Process & Compliance Technician, and Randolph Cliche, Operator, both with OCWA, 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:

- Deep River water treatment plant (WTP)
- Storage Reservoir
- Booster Pumping Station

See attached Ministry 021a Component Information Report for more detail on the DWS components. (Appendix C).

**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:

Drinking Water Works Permit Number 189-201 (Issue #4), Municipal Drinking Water Licence Number 189-101 (Issue # 4) and Permit to Take Water Number 8528-9ECQPJ.

**NON-COMPLIANCE**

This should not be construed as a confirmation of full compliance with all potential applicable legal requirements. 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.

## 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 had a harmful algal bloom monitoring plan in place which met the requirements.

MDWL conditions requiring development and implementation of a harmful algal bloom plans are typically found in Schedule C. Harmful algal bloom plans should include details relating to:

1) visual monitoring for HABs at or near the drinking water system intake(s);
2) details relating to visual monitoring of shoreline for drinking water systems where the proximity of the intake(s) may be of concern;
3) details relating to reporting the observed or suspected HAB;
4) a sampling plan, including the identification of sample location(s) and frequencies and triggers that may increase the sampling frequency; and,
5) up-to-date records documenting staff training on the HAB monitoring, reporting, and sampling procedures.

Furthermore, Condition 6.1.3 of the MDWL outlines, "the owner must train all relevant drinking water system staff on the Plan prior to the beginning of each warm season." Additionally, as outlined in Condition 6.3.6, the owner must also ensure that up-to-date records documenting this annual training are available for review.

The WCO reviewed the facility's "Harmful Algal Bloom Monitoring, Reporting and Sampling Plan" and determined that the owner has a plan in place that meets the requirements in Condition 6.3. Records confirm training and review of the monitoring plan took place on May 17, 2024.

| **Question ID** | DWMR1014001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | 31 | (1);

**Question:**
Was flow monitoring performed as required by the Municipal Drinking Water Licence or

Drinking Water Works Permit?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Flow monitoring was performed as required.

Flow measuring and recording requirements are prescribed in Section 2.0 "Flow Measurement and Recording Requirements" of Schedule C to the MDWL.

Flow measuring devices are installed in the raw water transmission line at the head of each Actiflo unit; the flows are totalized to measure the rate and daily volume of raw water entering the treatment system. Flow meters are also installed on each filter effluent line and one magnetic flow meter is located on the treated water discharge header to measure the rate and daily volume of treated water conveyed from the treatment system to the distribution system.

The flow measurement data is continuously transmitted to and recorded by the WTP SCADA system.

| **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 for the Deep River WTP is prescribed in Table 1: Rated Capacity in Section 1.0 "System Performance" of Schedule C to the MDWL. According to Table 1, the Deep River WTP is licensed to produce a not-to-exceed maximum daily volume of treated water of 13,638 cubic metres per day (m3/d) based on flow from the treatment subsystem (WTP) to the distribution system.

The reported maximum daily volume flowing from the WTP to the distribution system, during the inspection period, was 4197.39 m3/d, 31% of the rated capacity. This maximum volume was recorded in June 2024.

| **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.

On January 21, 2024, the WCO conducted a supervised tour of the Deep River WTP with Randolph Cliche and Brenda Royce for the purposes of examining the equipment installed and comparing that equipment to the equipment described in the DWWP.

The DWWP # 189-201 Issue Number 4 was issued on November 19, 2020. The WCO reviewed the document and based on observations made during the tour of the WTP, it appears that the equipment installed at the WTP matches that described in the DWWP # 189-201 Issue Number 4.

| **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.

A "Form 1 - Record of Watermains Authorized as a Future Alteration" is used by the owner of a drinking water system to document preauthorized additions, modifications, replacements and extensions to watermains within a distribution system that do not require a Schedule C application.

These forms are required to be kept for a period of ten years and should be available for review by a Provincial Officer upon request.

The WCO reviewed 1 Form 1 document that was prepared in accordance with the Drinking Water Works Permit for proposed improvement work along Glade Ave, Algonquin Street, Troyes Street and Hilcrest Ave, including valve replacement, hydrant replacement and rehabilitation of existing watermain with a SIPP lining.

The Form 1 document appears to be properly completed and was readily available for review by the WCO.

| **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.

A "Form 2 - Record of Minor Modification or Replacements to the Drinking Water System" is used by the owner of a drinking water system to document minor modifications or replacements to the drinking water system that do not require a Schedule C application.

These forms are required to be kept for a period of ten years and should be available for review by a Provincial Officer upon request.

The WCO reviewed a Form 2 document that was prepared in accordance with the Drinking Water Works Permit during the inspection period, dated November 15, 2024, for the replacement of the existing anthracite and sand filter media with granular activated carbon (GAC) and sand media for the 3 dual media filters.

The Form 2 document appeared to be properly completed and was readily available for review by the WCO.

| **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.

The Procedure for Disinfection of Drinking Water in Ontario and DWWP Schedule B require that the provisions of a document listed in the DWWP (or an approved procedure) be followed when a Drinking Water System is added to, modified, replaced, extended or where an activity has occurred that could introduce contamination (e.g. repair/maintenance activities).

A review of the DWS SOPs confirms that the owner has developed procedures for the disinfection of the treatment plant, watermains and storage facilities.

Section 3.2 of the Watermain Disinfection Procedure requires the owner to document the following:

- location/date;
- employee/time;
- watermain size/material;

- chlorine residual;
- water sample;
- time watermain back to full pressure;
- type/cause of break; and,
- age of watermain;
- Type of repair (e.g., clamp, cut out, etc.).
- Pipe and repair parts disinfected.
- Post-repair Flushing undertaken (if applicable).
- For Category 2, where additional steps were required under 2.4.1 and 2.4.2, describe these steps.
- For Category 2 – Special Cases, include site-specific plan.
- If chlorine disinfection was used, indicate initial concentration, contact time, final concentration and final concentration as percentage of initial concentration.
- Public agency notification.

1 "Watermain Repair" document completed for a Category 1 watermain break located at 9 Darwin Crescent was reviewed by the WCO and was found to contain the required information.

| **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 Deep River 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.

Primary disinfection is accomplished using free chlorination. As per the WTP's Worst Case Calculation, a Concentration-Time (CT) value of 25.57 mg/L/min is required under these conditions to ensure primary disinfection. Consequently, a minimum free chlorine residual of 0.5 mg/L is required in the treated water to achieve this worst-case CT value.

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:

- 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.

A review of operational logs for the inspection period found:

-The water treatment equipment was operating whenever water was being supplied to the users of the DWS;
- Coagulant was dosed to the treatment process at all times when the WTP was operating;
- Chemical dosages were monitored, and adjusted in response to variations in raw water quality, particularly raw water turbidity and temperature;
- The minimum Free Chlorine Residual was never less than 0.5 mg/L;
- The maximum filter effluent turbidity from each of the three filters during the inspection period was 0.081 NTU, 0.131 NTU and 0.072 NTU;
- The filtered water turbidity was equal to or less than 0.3 NTU in at least 95 per cent of all samples taken in each month; and,
- Each of the dual media filters used in the treatment process is equipped with a turbidimeter.

Turbidity is recorded by the WTP's SCADA system and filter effluent turbidity alarms are monitored. The Deep River WTP is equipped with automatic filter-to-waste capability; whenever filter effluent is greater than 0.5 NTU it is automatically directed to waste.

Only certified operators made adjustments to the water treatment equipment.

| **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 confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection was operated as required.

The requirements to maintain a free chlorine residual of 0.05 mg/L or a combined chlorine

residual of 0.25 mg/L are prescribed under "General obligations" in Schedule 1 to O. Reg. 170/03.

An examination of the logs completed during the inspection period found that grab distribution samples were all taken in accordance with the regulatory requirements.
The minimum free chlorine residual measured in the distribution system during the inspection period was 0.15 mg/L at the wastewater treatment plant (WWTP) sampling point.

| **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.

The owner of a large municipal residential system that provides secondary disinfection and the operating authority for the system shall ensure that at least seven distribution samples are taken each week and are tested immediately for free chlorine residual. At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week and at least three of the samples must be taken on a second day of the week. Unless at least one sample is taken on each day of the week.

In the case of the Deep River DWS, free chlorine residual is monitored in the distribution system utilizing the 4/3 model as permitted under section 7- 2(4) of O. Reg. 170/03. Four samples are collected from separate locations within the system on a single day, and three samples are collected from separate locations at least 48 hours later.

An examination of the logs completed during the inspection period found that grab distribution samples were all taken in accordance with the regulatory requirements mentioned above.

A continuous water quality analyzer is installed to sample and test from the Booster Pumping Station, for the purpose of evaluating free chlorine entering the distribution system from the first zone, and following re-chlorination (if required). The test results from this analyzer are used only for monitoring free chlorine residuals before water is distributed to CNL (Canadian Nuclear Laboratories). These results are trendable and alarmed, but do not get recorded on any reports or entered into PDM (Process Data Management).

| **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.

The requirement to monitor primary disinfection residual is prescribed in Schedule 7 to O. Reg. 170/03.

Chlorine is injected prior to the filtered water entering the 2 clear wells, one with a capacity of 1,364 m3 and a second with a capacity of 1,507 m3. With the total volume of the clear wells being used to calculate CT.

Primary disinfection chlorine monitoring is performed using a continuous analyzer to monitor chlorination at the exit of clearwell #2. Log inactivation values are calculated from this free chlorine residual value, and the residence time in both clearwells, where the required disinfection is achieved.

On the day of the inspection this analyzer displayed a free chlorine concentration of 1.13 mg/L.

| **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.

The requirement to monitor filter effluent turbidity is prescribed in Schedule 7 to O. Reg. 170/03.

Each filter effluent line is equipped with a continuous water quality analyzer, Swan AMI TURBIWELL, to continuously measure filter effluent turbidity and monitor filter performance.

The turbidity results from the three (3) turbidimeters are transmitted to, trended and stored by the WTP SCADA system. The filters will run-to-waste at an alarm setpoint of 0.5 NTU; the Actiflo units will shutdown and no water is directed to the clear wells.

| 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.

The requirements for examining test results measured by continuous monitoring equipment are prescribed in Schedule 6 to O. Reg. 170/03.

Details concerning "Trending and 72 Hour Review" are provided in the Deep River Procedures Binder.

A daily report of trending graphs from the continuous analyzer test results is produced each day by the SCADA system for operator review and analysis. The report is reviewed by the operator the next morning, within 24 hours during weekdays and within 72 hours during weekends (including holidays).

| 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.

The minimum sampling, testing and recording frequency by continuous water monitoring equipment is prescribed in the Table in section 6-5 of Schedule 6 to O. Reg. 170/03.

Data at the Deep River WTP is recorded instantaneously via SCADA and recorded to OCWA's WISKI database. WISKI records in 2-minute intervals, the data points represent the minimum value, the maximum value and the average value of instantaneous data collected over the two minutes.

| 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

Details concerning filter effluent turbidity, primary disinfection, secondary disinfection and critical alarms and response requirements are provided in the Deep River Procedures Binder.

According to information contained within the source identified above, the Deep River DWS continuous monitoring analyzers are equipped with appropriate alarms in such way that:

- free chlorine levels of 0.8 mg/L or less at the point where primary disinfection is meant to have been achieved will result in a shutdown of the low lift pumps, the filters and the high lift pumps;
- free chlorine levels of 0.25 mg/L or less at the point where distribution water enters the booster station will result in an alarm; and,
- filter effluent turbidity of 0.5 NTU or greater will result in a shutdown of filter operation and will filter to waste.

In all three scenarios, the alarms/lockouts prevent the distribution of partially treated water to users.

| **Question ID** | DWMR1040001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | O. Reg. 170/03 | 6-5 | (1)1-4; SDWA | O. Reg. 170/03 | 6-5 | (1)5-10;

**Question:**
Were all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
All continuous analysers were calibrated, maintained, and operated as required.

The requirements for checking and calibrating continuous water monitoring equipment are prescribed in Schedule 6 to O. Reg. 170/03.

Section 15 "Trending / Continuous Monitoring" of the Procedures Binder for the DWS outlines continuous analyzer calibration and maintenance procedures used at the Deep River DWS.

Calibration results are recorded on a "Continuous Monitoring Calibration Check Sheet" form for each analyzer and are stored in a "Calibrations" binder. The digital logbook also includes notations to document when analyzer calibrations or maintenance has occurred.

The WCO reviewed information contained in logs and records provided by the operating authority and observed that all chlorine analyzers and turbidimeters are verified on a monthly basis. Calibration of the units is conducted by the operator in the event that the unit(s) are found to be outside the recommended manufacturer's specifications during the verification exercise.

Flowmeters are calibrated by 2 third party companies, Capital Controls and Krohne, on an annual basis. Capital Control calibrates the 7 flow meters installed at the water treatment plant and Krohne calibrates the 2 flow meters at the pumping station and meter pit. The last calibration service dates were performed on September 26, 2024 (Capital Controls) and November 5-11, 2024 (Krohne).

| **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.

It was reported that when an alarm or plant shut off is triggered, a certified operator responds to the call as soon as reasonably possible.

The WCO reviewed the plant logbook and verified alarms events against the "Work Order Call Back Details Report" records. The WCO evaluated that appropriate actions were taken and that alarms were responded to within reasonable amount of time; usually between 15-45 minutes.

| **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.

On April 4, July 4, July 16 and October 3, 2024, OCWA submitted a Notice of Adverse Test

Result section 2C to SAC and the local district WCO advising that the THM running annual average results exceeded the standard.

The Drinking Water Authority is aware of the THM problem in the distribution system and is working with the Process, Optimization & Technical Services (POTS) team with the Ontario Clean Water Agency (OCWA) to determine a remedy to this problem.

The owner recently installed Granular Activated Carbon (GAC) in the 3 filters at the water treatment plant in November 2024. The GAC is helping to reduce the organics in the treated water and hence, THM levels in the distribution system. Consequently, the December THM results were 65.3 ug/L, 63.1 ug/L and 58.5 ug/L, all under the MAC of 100 ug/L.

A mercury exceedance was reported on August 8, 2024, in a treated water sample during routine chemical sampling (aluminum, manganese, magnesium).

| **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?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Treated microbiological sampling requirements were met.

In the case of the Deep River DWS, where there is a single point of entry into the distribution system, one sample must be taken each week from the point where water enters the distribution system and tested for E. coli, total coliforms and HPC.

The WCO reviewed microbiological sampling and testing records for the inspection period and found that one treated water sample was taken each week and submitted to a licensed laboratory for testing for E. coli, total coliforms and HPC.

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

| **Question ID** | DWMR1081001 | **Question Type** | Legislative |
|---|---|---|---|

**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);

**Question:**
Were distribution microbiological sampling requirements prescribed by Schedule 10-2 of O. Reg. 170/03 for large municipal residential systems met?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Distribution microbiological sampling requirements were met.

The number of distribution samples required each month is determined by the population of the system under Schedule 10-2. A minimum of eight (8) distribution samples per month with an additional sample for every 1000 people served by the system with at least one (1) sample taken per week is required.

Based on a self-reported population of approximately 4,175 people, at least 12 distribution samples must be taken each month, with at least one of the samples being taken each week, and tested for E. coli, and total coliforms, and at least 25% of all samples taken in each week tested for general bacteria population expressed as heterotrophic plate count (HPC).

The WCO reviewed microbiological sampling, and testing records available for the inspection period for the distribution system and found that the regulatory requirements were met.

| **Question ID** | DWMR1096001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | O. Reg. 170/03 | 6-3 | (1);

**Question:**
Did records confirm that chlorine residual tests were conducted at the same time and location as microbiological samples?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Records confirmed that chlorine residual tests were conducted as required.

The WCO examined records for the inspection period and observed that free chlorine residual test results were taken at the same time and locations that microbiological samples were obtained and were recorded on laboratory Sample Submission and Chain of Custody Forms. The free chlorine residual test results were also transcribed by the licensed laboratory on to the Reports of Analysis for the microbiological samples.

| **Question ID** | DWMR1084001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | O. Reg. 170/03 | 13-2;

**Question:**
Were inorganic parameter sampling requirements prescribed by Schedule 13-2 of O. Reg. 170/03 met?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Inorganic parameter sampling requirements were met.

Inorganic (Schedule 23) parameters are required every 12 months for a surface water source

under Schedule 13-2.

These were completed on January 4, 2024, previous samples were completed January 2, 2023. All results were well within the Ontario Drinking Water Quality Standards (ODWQS).

| **Question ID** | DWMR1085001 | **Question Type** | Legislative |
|---|---|---|---|

**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);

**Question:**
Were organic parameter sampling requirements prescribed by Schedule 13-4 of O. Reg. 170/03 met?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Organic parameter sampling requirements were met.

Organic (Schedule 24) parameters are required every 12 months for a surface water source under Schedule 13-4.

These were completed on January 4, 2024, previous samples were completed January 2, 2023. All results were well within the Ontario Drinking Water Quality Standards (ODWQS).

| **Question ID** | DWMR1093001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | O. Reg. 170/03 | 13-5 | (1); SDWA | O. Reg. 170/03 | 13-5 | (2);

**Question:**
If any Schedule 13-2 or 13-4 parameter(s) exceeded half the Ontario Drinking Water Quality Standard, did the owner increase the frequency of monitoring as required by Schedule 13-5 of O. Reg. 170/03?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
A Schedule 13-2 or 13-4 parameter(s) exceeded half the ODWQS value, and the owner increased the frequency of monitoring as required.

A mercury exceedance was reported on August 8, 2024, in a treated water during sample routine chemical sampling (aluminum, manganese, magnesium). This exceedance has prompted the DWS to increase the frequency of sampling under Schedule 13-5 subsection (1).

The operating authority believes this exceedance was due to laboratory improper sampling instructions. After the exceedance, the lab provided proper metal sampling bottles to the operators and instructed them to resample 1 treated water location and 3 distribution water locations. All 4 resamples returned a result of <0.0001 mg/L well within the regulatory limit of 0.001 mg/L. 4 more samples were taken on October 1, 2024, and further confirmed that the concentration of mercury was below the regulatory limit.

The Ministry's Senior Water Engineer was contacted to seek relief from quarterly sampling for mercury due to the original exceedance. The Engineer proposed that the owner collect another set of 4 samples 3 months following the last set of samples to further confirm that no mercury contamination was reported in the drinking water source.

Once these samples are collected and the results are received, the operating authority shall share these results with the WCO. Thereafter, the WCO will consult the Senior Water Engineer to determine if quarterly sampling of mercury can cease.

| **Question ID** | DWMR1086001 | **Question Type** | Legislative |
|---|---|---|---|

**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);

**Question:**
Were haloacetic acid sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Haloacetic acid sampling requirements were met.

Effective January 1, 2017, new requirements came into effect for sampling and testing of haloacetic acids (a disinfection by-product of chlorination) in distribution samples during each calendar quarter.

The WCO reviewed chemical sampling and testing records for the inspection period and observed that water samples were taken in January, April, May, June, July, August and October 2024, and submitted to a licensed laboratory for testing for haloacetic acids.

The test results for the 4 calendar quarters for the inspection period indicated haloacetic acids were present in concentration ranging from 36.1 to 87.9 ug/L.

The Ontario Drinking Water Quality Standard for haloacetic acids is 80 ug/L based on a running annual average concentration of 4 quarterly results.

The running annual average for haloacetic acid concentration during the inspection period was 61.18 ug/L (Q1, Q2, Q3 and Q4 of 2024).

| **Question ID** | DWMR1087001 | **Question Type** | Legislative |
|---|---|---|---|

**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);

**Question:**
Were trihalomethane sampling requirements prescribed by Schedule 13-6 of O. Reg. 170/03 met?

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Trihalomethane sampling requirements were met.

THM sampling is required every 3 months from a point in the distribution system that is likely to have elevated THM levels (ie. the farthest point) under Schedule 13-6. The WCO reviewed chemical sampling and testing records for the inspection period and observed that water samples were taken in January, April, May, June, July, August, October and December 2024. These samples were submitted to a licensed laboratory for testing for trihalomethane (THM) testing.

The test results for the 4 calendar quarters for the inspection period indicated THMs were present in concentration ranging from 58.6 to 198 ug/L. The Ontario Drinking Water Quality Standard (ODWQS or the "Standard") for THMs is 100 ug/L based on a moving average of four quarterly sampling periods.

The running annual average for THM during the inspection period was 109.76 ug/L (Q1, Q2, Q3 and Q4 of 2024), exceeding the regulatory limit.

| **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.

Nitrate/nitrite sampling is required every three (3) months under Schedule 13-7, taken from the treated water location.

The WCO reviewed sampling and testing records for the inspection period and observed that water samples were taken quarterly (every three months) from a location within the Deep River WTP where the treated water enters the distribution system on January 2, 2024; April 2, 2024; July 2, 2024; and, October 1, 2024, within the required frequency and at the required location.

All samples were submitted to a licensed laboratory for nitrate and nitrite testing and results were well within the Ontario Drinking Water Quality Standards (ODWQS).

| 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.

Sodium sampling is required every 60 months under Schedule 13-8, taken from the treated water location. It was last sampled for on January 4, 2023 with a result of 17 mg/L, within the limit of 20mg/L where a notification to the Medical Officer of Health is required.

| Question ID | DWMR1091001 | Question Type | Legislative |
|---|---|---|---|

**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.

Fluoride concentration is continuously monitored using a ProMinent brand, model diaLog DACb continuous fluoride analyzer.

Additionally, operators perform daily grab samples for in-house analysis on weekdays (Monday- Friday). According to information reviewed for the inspection period, the fluoride concentration ranged between 0.02 and 0.98 mg/L.

| Question ID | DWMR1094001 | Question Type | Legislative |
|---|---|---|---|

**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.

Additional sampling, testing and monitoring are established in section 5.2 to Schedule C of the MDWL. The owner must comply with the backwash wastewater sampling requirements for all environmental discharge parameters listed in Table 7 of this Schedule.

- Suspended Solids: One composite sample monthly at the point of discharge.

In respect to the effluent discharge parameters, the annual average concentration shall not exceed the values set out in Table 3 to Schedule C and must be calculated at least once monthly as the running annual average (RAA) based on the previous twelve months of results. The annual average concentration for Suspended Solids shall not exceed 25 mg/L.

The annual average for effluent Suspended Solids discharged from the treatment subsystem during the inspection period was 2.33 mg/L.

| **Question ID** | DWMR1104001 | **Question Type** | Legislative |
|---|---|---|---|

**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. 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 for adverse water quality incidents were met.

| **Question ID** | DWMR1101001 | **Question Type** | Legislative |
|---|---|---|---|

**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;

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

**Compliance Response(s)/Corrective Action(s)/Observation(s):**
Corrective actions were taken to address adverse conditions.

| **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.

MDWL #189-101, Schedule B: General Conditions, 16.0 Operations and Maintenance Manual, 16.2 states:

The operations and maintenance manual or manuals, shall include at a minimum:

- The requirements of this license and associated procedures;
- The requirements of the drinking water works permit for the drinking water system;
- A description of the processes used to achieve primary and secondary disinfection within the drinking water system;
- A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions;
- 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.

The WCO reviewed the Procedures Binder for the system and found that the documents included within met the requirements prescribed in Section 16.0 of Schedule B to the MDWL.

| **Question ID** | DWMR1062001 | **Question Type** | Legislative |
|---|---|---|---|

**Legislative Requirement(s):**
SDWA | O. Reg. 170/03 | 7-5;

**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?

**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.

A review of the Deep River Water Treatment Plant Electronic Log sheets used for recording the results of operational tests; sample submission and chain of custody forms for samples submitted to the licensed laboratory used to provide drinking water testing services; and, results of field testing for chlorine residual and pH, found that operational testing and other regulatory field testing was conducted by certified operators.

| 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 WCO assessed site security at the Deep River WTP and the Low Lift Pumping Station, the Booster Pumping Station and the Elevated Storage Reservoir. The following observations were made:

- The low lift building is equipped with a locked door, and contact switch wired to an active alarm dialer. The windows of the low lift building are equipped with metal grids. The access door is posted with signage to alert of no trespassing. The access door is locked.
- All interior and exterior doors at the WTP are equipped with contact switches wired to an active dialer, and high security locks. All doors are locked.
- The Booster Pumping Station is equipped with a locked access door. The access door is fitted with a contact switch wired to an active alarm dialer. The door is locked. The exterior of the booster station building is equipped with a "No Trespassing" sign.
- The Elevated Storage Reservoir site is equipped with perimeter security fencing posted with "No Trespassing" signs, complete with barbed wire, and a locked access gate. The access door to the control building/enclosure located at the base of the elevated storage tank is equipped with an alarm contact switch wired to an active dialer and is locked.

| 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.

The Deep River WTP is a Class III Water Treatment plant and the distribution system is classified as a Class I Water Distribution system.

The Overall Responsible Operator (ORO) is noted in the logbook each day. At the time of inspection, ORO position was held by Brad Sweet. The operator held a valid Class 4 Water Treatment Subsystem Certificate and was deemed to hold a Class 1 Distribution Subsystem Certificate as established under O. Reg. 128/04, s. 11(1).

| 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.

The operating authority identifies/designates several operators as operators in charge (OIC) for the Deep River DWS. All OICs hold valid operator certificates and clearly identify themselves in the logbook.

| 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.

| 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.

The WCO examined copies of original operator certificates for all personnel involved with the day-to-day operation of the Deep River DWS, verified the information against an operator certification database maintained by the Ontario Water Wastewater Certification Office (OWWCO), and found that all operators held valid water treatment subsystem operator certificates.

1 Operator in Training (OIT), Ava Yates, was identified in the logbook during the inspection period. It was reported that whenever the OIT was performing her duties at the Deep River DWS, she was working under the supervision of a certified operator.

# APPENDIX A

# DRINKING WATER LICENCE AND WORKS PERMIT

Ontario

# DRINKING WATER WORKS PERMIT

## Permit Number: 189-201
## Issue Number: 4

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:

## The Corporation of the Town of Deep River

**100 Deep River Road**
**Box 400**
**Deep River, ON K0J 1P0**

For the following municipal residential drinking water system:

## Deep River 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 # 189-201, all previously issued versions of permit # 189-201 are revoked and replaced by this permit.

DATED at TORONTO this 19th day of November, 2020

Signature

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

# Schedule A: Drinking Water System Description

| | |
|---|---|
| System Owner | **The Corporation of the Town of Deep River** |
| Permit Number | **189-201** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Permit Effective Date | **November 19, 2020** |

## 1.0 System Description

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

### Overview

The **Deep River Drinking Water System** consists a conventional, chemically assisted water treatment plant and a distribution system serving the Town of Deep River.

## Deep River Water Treatment Plant

| | |
|---|---|
| Source | Ottawa River |
| Plant Location | 177 River Road, County of Renfrew |
| UTM Coordinates | (NAD 83: UTM Zone 18: 307335.00 m E., 5109295.00 m N.) |
| Notes | |

### Low Lift Works

**Intake Crib**

| | |
|---|---|
| Description | A 750 mm diameter intake extending approximately 91 meters into the Ottawa River terminating at a depth of approximately 9 meters below the water surface; |
| Notes | |

### Low Lift Pumping Station

| | |
|---|---|
| Description | A low-lift pumping station consisting of a 9.14 m by 1.52 m by 5.64 m deep low lift pump well and above ground building |
| Location | (NAD 83: UTM Zone 18: 307445.00m E, 5109325.00m N) |
| Equipment | Three (3) submersible pumps (one duty, two standby) each rated at 83.1 L/s at 25 m of TDH |
| Notes | raw water main from the low lift pumping station to the water treatment plant |

## Treatment Plant

### Mixing

| | |
|---|---|
| Description | an in-line static mixer, 300 mm diameter; |
| Notes | |

### Flocculation and Clarification

| | |
|---|---|
| Description | three (3) package flocculation and clarification (Actiflo) units, each rated at raw water flow rate of 4,733 $m^3$/day, consisting of: |
| Equipment | • a rapid mixing basin, an injection chamber, a maturation chamber and a high rate ballasted settling basin, scraper and inclined tube settlers;<br>• four (4) sand recirculation pumps (three duty one stand by)<br>• three (3) hydrocyclones;<br>• electrical and mechanical equipment and control. |
| Notes | • Three (3) flow meters are located on the influent side to each (3) actiflo units |

### Filtration

| | |
|---|---|
| Description | three (3) dual media sand anthracite filters each with a surface area of 18.9 $m^2$; for a total area of 56.7 $m^2$ |
| Equipment | • two (2) air scour blowers equipped with 18.6 kW motor (one duty, one standby)<br>• two (2) backwash variable speed vertical turbine pumps, (one duty, one standby) each rated at 236 L/s at a TDH of 22 m;<br>• piping and control to facilitate filter to waste;<br>• electrical and mechanical equipment and control. |
| Notes | |

**Treated Water Storage**

| | |
|---|---|
| Clearwells | • one (1) clearwell with a capacity of 1,364 $m^3$;<br>• one (1) clearwell with a capacity of 1,507 $m^3$; |
| Pump Wells | • one (1) pump well with a capacity of 90 $m^3$;<br>• one (1) pump well with a capacity of 110 $m^3$ |
| Notes | |

**High Lift Pumps**

| | |
|---|---|
| Description | four (4) vertical turbine high lift pumps, (one duty, three standby) each rated at 87 L/s at a TDH of 82 m. |
| Notes | Rotated by hours (lowest hours start first). |

**Disinfection System**

| | |
|---|---|
| Description | A gaseous chlorine disinfection system consisting of one (1) tank and four (4) weigh scales; |
| | chlorine solution lines, one leading to an injection point at the filter outlet header prior to the clearwell, and the other leading to an injection point in the pump well upstream the high lift header, and one (1) standby clear well chlorinator |
| | Chlorine gas scrubber system; |
| Notes | |

**Chemical Storage and Feed Systems**

| | |
|---|---|
| Coagulant | Primary Coagulant feed system consisting of one (1) 51,200 L capacity liquid coagulant, one (1) 6,600 L day tank and two (2) (one duty, one standby) chemical feed metering pumps each with a capacity of 80 L/hr; |
| pH Adjustment | pH/Alkalinity Adjustment consisting of one (1) 51,200 L capacity liquid caustic soda tank, one (1) 3,100 L day tank and four (4) (two duty, two standby) chemical feed metering pumps with a flow capacity of 60 L/hr each and chemical feed lines to raw water pipe (pre-alkalinity) just upstream of the static mixer, and to the distribution header; |
| Coagulant Aid | Coagulant aid for the water treatment clarifiers – two (2) dry polymer preparation systems consisting of two (2) 3,100 L dissolving tanks with mixer; four (4) (three duty, one standby) chemical feed metering pumps with a flow capacity of 45 L/hr each and chemical feed lines to the three package treatment units injection chambers; |
| Wastewater Coagulant Aid | Coagulant aid for the wastewater clarifier consisting of one (1) dry polymer preparation system consisting of 3,100 L dissolving tank with mixer; three (3) (two duty, one standby) chemical feed metering pumps with a flow capacity of 45 L/hr each and chemical feed lines to the hydrocyclones reject pipe, and to surge tank pumps discharge pipe; |
| | Coagulant aid for the dewatering centrifuge consisting of one (1) dry polymer preparation systems each consisting of 3,100 L dissolving tank with mixer; two (2) (one duty, one standby) chemical feed metering pumps with a flow capacity of 90 L/hr each and chemical feed line to the sludge dewatering centrifuge inlet; |
| | Dechlorination chemical feed system consisting of one (1) 210 L storage tank and two (2) (one duty, one standby) chemical feed metering pumps with a flow capacity of 2 L/hr each and chemical feed line to the wastewater clarifier supernatant discharge pipe; |
| Fluoridation | Hydrofluosilicic acid feed system consisting of one (1) 210 L storage tank and two (2) (one duty, one standby) chemical feed metering pumps with a flow capacity of 4 L/hr each and chemical feed line to the distribution header; |
| Notes | |

**Residue Management Facility (Wastewater Treatment)**

| | |
|---|---|
| Description | two (2) filter backwash wastewater surge tanks, each approximately 113 $m^3$, equipped with two transfer pumps; |
| | wastewater tube settlers clarifier having a surface area of 21.8 $m^2$ with a dechlorinated supernatant discharge line to the river (Not in use); |
| | a sludge thickener tank of 179 $m^3$ equipped with two (2) sludge pumps that convey the thickened sludge to a dewatering centrifuge with supernatant discharge to wastewater surge tanks; |
| | Dewatered sludge screw conveyor to truck loading area |
| Notes | |

### Standby Power

| | |
|---|---|
| Description | One (1) standby 600 kW diesel generator complete with 1,500 L fuel storage tank to run the generator for 24 hours under full load; |
| | One (1) standby 113 kW diesel generator complete with 1,135 L fuel storage tank at the booster pumping station. |
| Notes | |

## Storage Reservoir

| | |
|---|---|
| Description | 1,513 $m^3$ elevated water tower located near the water treatment plant, on the corner of Deep River Road and Highway 17, south of the plant. |
| Notes | |

## Booster Pumping Station

| | |
|---|---|
| Description | Booster Pumping Station located at 41 Balmer Bay Road |
| | • Three (3) horizontal pumps each rated at 52 Lis at 69. 7m TDH;<br>• Two (2) chemical feed pumps;<br>• One (1) 338 L storage tank for the re-chlorination system;<br>• Two (2) HACH 17 chlorine meters, one (1) located on the watermain entering the Booster Pumping Station and one (1) on watermain leaving the Booster Pumping. |
| Notes | |

## Instrumentation and Control

### Instrumentation and Controls

| | |
|---|---|
| Turbidity | • three (3) continuous turbidity monitors located on the Actiflo discharge;<br>• three (3) continuous turbidity monitors located on the filter discharge; |
| pH | • one (1) continuous pH monitor located on raw water feed to clarifiers after static mixer; |
| Chlorine | • one (1) continuous chlorine analyzer located at the beginning of clearwell #1 after pre-chlorination.<br>• one (1) continuous chlorine analyzer located at the end of clearwell #2 as water enters the high lift pump well.<br>• one (1) continuous chlorine analyzer located on the distribution header before water enters the distribution system. |
| Fluoride | • one (1) continuous fluoride ion analyzer located on the distribution header. |
| Notes | |

### SCADA System

| | |
|---|---|
| Description | SCADA system connected to all project PLCs, with supervising personnel computer located in the office of the water treatment plant building. |
| Notes | |

## Fuel Oil Systems

### Fuel Storage Locations

| | |
|---|---|
| Location | |
| Description | |
| Fuel Type | |
| Source Protection Area | Not applicable |
| 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<br>Document or File Name | Column 2<br>Date |
|---|---|
| Town of Deep River Distribution Map | September, 2015 |

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 | **The Corporation of the Town of Deep River** |
| Permit Number | **189-201** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Permit Effective Date | **November 19, 2020** |

## 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 #189-101.

1.2 The definitions and conditions of licence #189-101 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 #189-101.

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 six months from the date of issue of this permit, the ministry's Watermain Disinfection Procedure, dated November 2015. Thereafter, 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.

1.0 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.

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 reporting 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/$m^3$ 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 | **The Corporation of the Town of Deep River** |
| Permit Number | **189-201** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Permit Effective Date | **November 19, 2020** |

## 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<br>Issue # | Column 2<br>Issued Date | Column 3<br>Description | Column 4<br>Status | Column 5<br>DN# |
|---|---|---|---|---|
| 1 | 2016/04/15 | Supply to CNL | Complete | 2 |

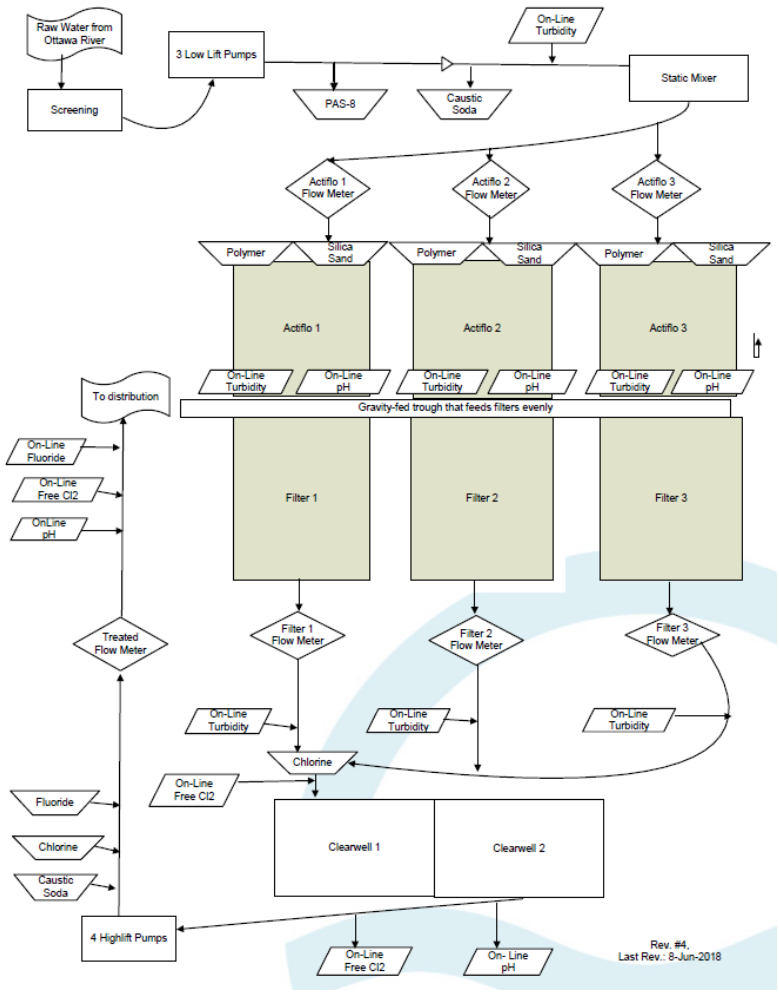
**1.2** For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These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

# Schedule D: Process Flow Diagrams

| | |
|---|---|
| System Owner | **The Corporation of the Town of Deep River** |
| Permit Number | **189-201** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Permit Effective Date | **November 19, 2020** |

## 1.0 Process Flow Diagrams

**Deep River Water Treatment Plant**




**Source: Operational Plan for the Deep River Drinking Water System, June 8, 2018**

**Note: this process flow diagram is for reference only, and represents a high level overview of the system as of June 8, 2018.**

Ontario

# MUNICIPAL DRINKING WATER LICENCE

## Licence Number: 189-101
## Issue Number: 4

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:

## The Corporation of the Town of Deep River

**100 River Road**
**Deep River Box 400**
**ON**

For the following municipal residential drinking water system:

## Deep River 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 # 189-101, all previously issued versions of licence # 189-101 are revoked and replaced by this licence.

DATED at TORONTO this 19th day of November, 2020

Signature

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

# Schedule A: Drinking Water System Information

| | |
|---|---|
| System Owner | **The Corporation of the Town of Deep River** |
| Licence Number | **189-101** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Licence Effective Date | **November 19, 2020** |

## 1.0 Licence Information

| | |
|---|---|
| Licence Issue Date | November 19, 2020 |
| Licence Effective Date | November 19, 2020 |
| Licence Expiry Date | November 18, 2025 |
| Application for Licence Renewal Date | May 18, 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 |
|---|---|---|
| Deep River Drinking Water System | 189-201 | November 19, 2020 |

**2.2** Permits to Take Water

| Water Taking Location | Permit Number | Issue Date |
|---|---|---|
| Deep River Water Treatment Plant | 8528-9ECQPJ | 2013/12/17 |

**2.3** Other Documents

| Document Title | Version Number | Version Date |
|---|---|---|
| | | |

## 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: | 189-301 |
| Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be: | 189-301A |

## 4.0 Accredited Operating Authority

| Drinking Water System or Operational Subsystems | Accredited Operating Authority | Operational Plan No. | Operating Authority No. |
|---|---|---|---|
| Deep River Water Treatment Plant | Ontario Clean Water Agency | 189-401 | 189-OA2 |
| Deep River Distribution System | Ontario Clean Water Agency | 189-401A | 189-OA2 |

# Schedule B: General Conditions

| | |
|---|---|
| System Owner | **The Corporation of the Town of Deep River** |
| Licence Number | **189-101** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Licence Effective Date | **November 19, 2020** |

## 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 | **The Corporation of the Town of Deep River** |
| Licence Number | **189-101** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Licence Effective Date | **November 19, 2020** |

## 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<br>Treatment Subsystem Name | Column 2<br>Rated Capacity ($m^3$/day) |
|---|---|
| Deep River Water Treatment Plant | 13,638 |

### 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<br>Treatment Subsystem Name | Column 2<br>Treatment Subsystem Component | Column 3<br>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

1.5.2 The maximum concentration of a test parameter identified in column 2 shall not exceed the value in column 4 of the same row.

1.5.3 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 this Licence.

**Table 3: Residuals Management**

| Column 1<br>Treatment Subsystem or Treatment Subsystem Component Name | Column 2<br>Test Parameter | Column 3<br>Annual Average Concentration (mg/L) | Column 4<br>Maximum Concentration (mg/L) |
|---|---|---|---|
| Deep River Water Treatment Plant | Suspended Solids | 25 | Not Applicable |

### 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<br>Treatment Subsystem or Treatment Subsystem Component Name | Column 2<br>Minimum Continuous Pass-Through UV Dose ($mJ/cm^2$) | Column 3<br>Control Strategy | Column 4<br>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 ($m^3$/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 ($m^3$/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 #189-201, 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<br>Treatment Subsystem or Treatment Subsystem Component Name | Column 2<br>Test Parameter | Column 3<br>Sampling Frequency | Column 4<br>Monitoring Location |
|---|---|---|---|
| Not Applicable | Not Applicable | Not Applicable | Not Applicable |

| 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** |
| Not Applicable | Not Applicable | Not Applicable | Not Applicable |

## 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** |
| Deep River Water Treatment Plant | Suspended Solids | Composite | Monthly | Effluent pipe discharging to Ottawa River |

**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:

5.5.2.1 To a road or storm sewer; or

5.5.2.2 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 <approx. 6 months from issuance of the MDWL >

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:

6.2.1.1 near the shoreline at or near the source water intake(s) described in drinking water works permit #189-201, or

6.2.1.2 where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or

6.2.1.3 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 though 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),

6.3.1.1 as described in drinking water works permit #189-201, or

6.3.1.2 where the intake has an Intake Protection Zone in a source protection plan, within IPZ-1, or

6.3.1.3 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:

6.3.3.1 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;

6.3.3.2 to the medical officer of health; and

6.3.3.3 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.

## 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 | **The Corporation of the Town of Deep River** |
| Licence Number | **189-101** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Licence Effective Date | **November 19, 2020** |

As of the effective date of this drinking water licence, 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 | **The Corporation of the Town of Deep River** |
| Licence Number | **189-101** |
| Drinking Water System Name | **Deep River Drinking Water System** |
| Licence Effective Date | **November 19, 2020** |

## 1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

### Deep River Water Treatment Plant

Deep River [SURFACE WATER]

| Minimum Log Removal/ Inactivation Required | Cryptosporidium Oocysts | Giardia Cysts [a] | Viruses [b] |
|---|---|---|---|
| Deep River Water Treatment 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] | - | 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 | 1. A chemical coagulant shall be used at all times when the treatment plant is in operation;<br>2. Chemical dosages shall be monitored and adjusted in response to variations in raw water quality;<br>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;<br>4. Filtrate turbidity shall be continuously monitored from each filter; and<br>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 | 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<br>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** | |

# APPENDIX B

# PERMIT TO TAKE WATER

**PERMIT TO TAKE WATER**
Surface Water
NUMBER 4383-CYET6R

*Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:*

The Corporation of the Town of Deep River
100 Deep River Rd P.O. Box 400
Deep River, Ontario, K0J 1P0
Canada

*For the water taking from:* Ottawa River

*Located at:* 177 River Rd
Deep River, County of Renfrew

*For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:*

**DEFINITIONS**

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

(d) "District Office" means the Ottawa District Office.

(e) "Permit" means this Permit to Take Water No. 4383-CYET6R including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means The Corporation of the Town of Deep River.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

*You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:*

## TERMS AND CONDITIONS

### 1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated October 11, 2023 and signed by Dave McCarthy, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person without the Director's written consent.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change.

### 2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act*, R.S.O. 1990, the *Pesticides Act*, R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals
The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and the *Environmental Protection Act*, and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

## 3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **December 31, 2033**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

**Table A**

| | Source Name / Description: | Source: Type: | Taking Specific Purpose: | Taking Major Category: | Max. Taken per Minute (litres): | Max. Num. of Hrs Taken per Day: | Max. Taken per Day (litres): | Max. Num. of Days Taken per Year: | Zone/ Easting/ Northing: |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Ottawa River | River | Municipal | Water Supply | 12,274 | 24 | 15,911,000 | 365 | 18 307340 5109278 |
| | | | | | | **Total Taking:** | 15,911,000 | | |

## 4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. The daily volume of water taken shall be measured by a flow meter or calculated in accordance with the method described in the application for this Permit, or as otherwise accepted by the Director. This record shall include the dates and times of water takings, the rates of pumping, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The Permit Holder shall submit, on or before March 31st in every year, the daily water taking data collected and recorded for the previous year to the ministry's Water Taking Reporting System.

## 5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Surface-Water Takings

The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

5.3 The taking of water from shall be carried out in such a manner as to prevent the disruption or removal of any fish, invertebrates, or sediment from the Ottawa River.

**6. Director May Amend Permit**

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

*In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:*

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*In addition to these legal requirements, the Notice should also include:*

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

*This notice must be served upon:*

*The Secretary*
*Environmental Review Tribunal*
*Registrar*
*Ontario Land Tribunal*
*655 Bay Street, Suite 1500*
*Toronto, Ontario*
*M5G 1E5*
*OLT.Registrar@ontario.ca*

*AND*

*The Director, Section 34.1,*
*Ministry of the Environment, Conservation and Parks*
*Floor 1, 135 St Clair Ave W*
*Toronto, ON*
*M4V 1P5*

***Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:***

| by Telephone at | by Fax at | by e-mail at |
|---|---|---|
| (416) 212-6349 | (416) 326-5370 | www.ert.gov.on.ca |
| Toll Free 1(866) 448-2248 | Toll Free 1(844) 213-3474 | |

This Permit cancels and replaces Permit Number 8528-9ECQPJ, issued on 2013/12/17.

Dated at Toronto this 15th day of March, 2024.

Archana Uprety
Director, Section 34.1
*Ontario Water Resources Act* , R.S.O. 1990

## Schedule A

This Schedule “A” forms part of Permit To Take Water 4383-CYET6R, dated March 15, 2024.

# APPENDIX C

# COMPONENT INFORMATION REPORT

# DWS Component Information Report for 220000923

**as of 27-JAN-2025**

## Drinking Water System Profile Information

| | |
|---|---|
| **DWS #** | 220000923 |
| **MOE Assigned Name** | Deep River Drinking Water System |
| **Category** | LMRS |
| **Regulation** | O.REG 170/03 |
| **DWS Type** | Water Treatment Plant |
| **Source Type** | Surface Water |
| **Address** | 177 River Road, Deep River, Ontario, K0J 1P0, Canada |
| **Region** | Eastern Region |
| **District** | Ottawa District |
| **Municipality** | Deep River |
| **Public Health Unit** | Renfrew County And District Health Unit |

| LWIS Component Name | LWIS Component Type | LWIS Component Sub-Type | Component Address | Comments |
|---|---|---|---|---|
| Process Wastewater | Other | Other | | Process wastewater is generated from filter backwashing, filter to waste activities and from the sand residuals and drainage from the Actiflo® treatment process (Actiflo® waste). The filter backwash wastewater and Actiflo® wastewater discharge to the wastewater surge tanks and the wastewater lamella tube settlers clarifier; while the Actiflo® overflow, clearwell overflow and filter to waste discharge directly to the ditch and the river. The hydrocyclone waste discharges to the lamella clarifier.<br><br>The residue management facility (wastewater treatment) consists of two (2) filter backwash wastewater surge tanks, each approximately 113 m³, equipped with two (2) transfer pumps; wastewater tube settlers clarifier with supernatant discharge line to the river; and a sludge thickener tank equipped with two sludge pumps that convey the thickened sludge to a dewatering centrifuge with supernatant discharge to wastewater surge tanks. The screw conveyor was extended to allow emptying into a dump truck for disposal.<br><br>There is a sodium bisulfite feed system that is operational but it is not being used. There is currently no need to dechlorinate the supernatant being discharged to the Ottawa River as there is no chlorine present in the supernatant being discharged to the river. |
| Elevated Storage Tank | Other | Reservoir | Highway 17, | The Town of Deep River stores treated water in a 1,513 m³ elevated water storage tank (30.5 m) located on the corner of Deep River Road and Highway 17, south of the water treatment plant. Treated water flows by gravity from the tower into the municipal distribution system. Water level sensors contained within the elevated storage tank activate/deactivate operation of the high lift pumps. The reservoir is contained within a locked security perimeter fence. A small cinder block structure located near the base of the tower and within the perimeter fencing contains all valves necessary for draining and isolating the tower. |
| Source Water | Source | Surface Water | 176 River Road, | The Deep River Water Treatment Plant (WTP) obtains raw |

| LWIS Component Name | LWIS Component Type | LWIS Component Sub-Type | Component Address | Comments |
|---|---|---|---|---|
| | | | | water from the Ottawa River. The Ottawa River watershed comprises an extensive drainage basin (approximately 146,000 square kilometers) with approximately 40% of the watershed entering the river upstream of the town. Land use upstream of Deep River is predominantly undeveloped forest with limited agricultural, forestry and mining activity. The communities upstream of Deep River include Rolphton, Stonecliffe, Deux Rivieres, Mattawa and Temiskaming. Other activities include the Rapides-des-Joachims (Da Swisha) Hydroelectric Generating Station, the Mattawa Hydroelectric Generating Station, Driftwood Provincial Park and Trans Canada Highway No. 17.<br><br>The Ottawa River water quality is characterized by low turbidity (0.8 - 5.3 NTU), moderate to high colour (4 - 60 TCU), and low alkalinity (9 - 34 mg/L as CaCO3), which is typical for Northern Ontario, as stated in the Design Brief by Jp2g Consultants Inc. (December 2004). Results of sampling and testing between January 2000 and March 2003 indicate the pH ranges between 6.72 and 7.78; and Dissolved Organic Carbon (DOC) ranges from 5 - 7.4. With respect to microbiological contamination of the raw water, the Engineer's Report prepared by Azurix North America Engineering Corp. (January 2001) outlines that sewage bypassing at upstream municipalities is of concern. Azurix concludes that E. coli is present in approximately 50% of raw water samples, and total coliforms are present in about 75% of samples. |
| Distribution System | Other | Other | Not Applicable, | The Deep River drinking water system services a population of approximately 4,109 persons. Construction of the Town of Deep River's Water Distribution System was initiated in 1945, and has seen numerous extensions and modifications over the past sixty years. The Town's consumers are not provided with individual water meters.<br><br>Deep River DWS is also connected to CNL with approximately 9,000 m of 300 mm diameter watermain pipe from the booster pumping station to the CNL site.<br><br>The water mains are constructed of mostly cast iron, ductile iron and polyvinyl chloride (PVC), and range in diameter from 38 mm (1.5 inches) to 406 mm (16 inches). There is approximately 75 km of water mains within the distribution system and approximately 242 hydrants and hydrant valves. |
| Booster Pumping Station | Other | Other | | Booster Pumping Station (new), located at Balmer Bay Road, next to the hospital:<br>- three (3) horizontal pumps each rated at 26 L/s at 69.7 m TDH;<br>- two (2) chemical feed pumps;<br>- One (1) 338 L storage tank for the re-chlorination system;<br>- Two (2) HACH chlorine analyzers, one (1) located on the watermain;<br>- Sodium hypochlorite carboys with secondary containment pallet; and, |

| LWIS Component Name | LWIS Component Type | LWIS Component Sub-Type | Component Address | Comments |
|---|---|---|---|---|
| | | | | - 113 kW diesel generator and fuel storage tank. |
| Low Lift Pumping Station | Source | Pumphouse | 176 River Road, | The intake works for the Deep River WTP is located at the Low Lift Pumping Station and consists of a 750 mm diameter intake extending approximately 91m into the Ottawa River terminating at a depth of approximately 9 m below the surface.<br><br>The low lift pumping station consists of a 9.14 m by 1.52 m by 5.64 m deep low lift pump well and above ground building, equipped with three (3) submersible pumps (3 duty, controlled by hours of operation), each rated at 83.1 L/s at 25 m TDH; and a raw water main from the low lift pumping station to the water treatment plant. |
| Water Treatment Process | Treated Water Poe | Treatment Facility | 177 River Road, | The Deep River WTP comprises of the following:<br><br>• an in-line static mixer, 300 mm diameter;<br><br>• three (3) package flocculation and clarification (Actiflo®) units, each rated at raw water flow rate of 4,773 $m^3/d$, consisting of: a rapid mixing basin, an injection chamber, a maturation chamber and a high rate ballasted settling basin, scraper and inclined tube settlers; four (4) sand recirculation pumps (three duty and one standby); three (3) hydrocyclones; electrical and mechanical equipment and control;<br><br>• three (3) dual media sand and anthracite filters with a total area of 56.7 $m^2$;<br><br>• two (2) air scour blowers equipped with 18.6 kW motor (one duty, one standby);<br><br>• two (2) backwash variable speed vertical turbine pumps (one duty, one standby) each rated at 236 L/s at a TDH of 22 m;<br><br>• piping and control to facilitate filter to waste;<br><br>• electrical and mechanical equipment and control;<br><br>• two (2) clear wells, one with a capacity of 1,364 $m^3$, and a second with a capacity of 1,507 $m^3$; and two (2) pump wells, one with a capacity of 90 $m^3$ and the other with a capacity of 110 $m^3$;<br><br>• four (4) vertical turbine high lift pumps (one duty, three standby), each rated at 87 L/s at a TDH of 82 m;<br><br>• a gaseous chlorine disinfection system consisting of one (1) bank of four (4) 68.2 kg cylinders;<br><br>• chlorine solution lines, one leading to an injection point at the filter outlet header prior to the clear wells, and the other<br>leading to an injection point in the pump well upstream of the high lift header; and, |

| LWIS Component Name | LWIS Component Type | LWIS Component Sub-Type | Component Address | Comments |
|---|---|---|---|---|
| | | | | • a chlorine gas scrubber system.<br><br>The chemical storage and feed systems consist of the following:<br><br>• a primary coagulant (PAS8) feed system consisting of two (2) liquid coagulant tanks, , one (1) tank is 51,200 L capacity and one (1) day tank is 6,600 L, and two (2) chemical feed metering pumps (one duty, one standby) with a flow capacity of 80 L/hr and chemical feed line prior to the Actiflo® units;<br><br>• pH/alkalinity adjustment consisting of two (2) tanks, one (1) is 51,200 L and one (1) day tank of 3,400 L, of liquid caustic soda and four (4) chemical feed metering pumps (two duty, two standby) each with a flow capacity of 60 L/hr and chemical feed lines to the raw water pipe (pre-alkalinity) just upstream of the static mixer, and to the distribution header;<br><br>• coagulant aid for the water treatment clarifiers consisting of two (2) dry polymer preparation systems each consisting of 3,400 L dissolving tank with mixer; four (4) chemical feed metering pumps (three duty, one standby) each with a flow capacity of 45 L/hr and chemical feed lines to the three package treatment units injection chambers;<br><br>• coagulant aid for the wastewater clarifier unit consisting of two (2) dry polymer preparation systems each consisting of 3,400 L dissolving tank with mixer; three (3) chemical feed metering pumps (two duty, one standby) each with a flow capacity of 45 L/hr and chemical feed lines to the hydrocyclones reject pipe, and to surge tank pumps discharge pipe;<br><br>• coagulant aid for the dewatering centrifuge consisting of one (1) dry polymer preparation systems each consisting of 3,400 L dissolving tank with mixer; two (2) chemical feed metering pumps (one duty, one standby) each with a flow capacity of 90 L/hr and chemical feed lines to the sludge dewatering centrifuge inlet; and,<br><br>• dechlorination chemical (sodium bisulfite) feed system, which is currently not operational and;<br>• hydrofluosilicic acid feed system consisting of a 210 L storage tank and two (2) chemical feed metering pumps (one duty, one standby) each with a flow capacity of 4 L/hr and chemical feed line to the distribution header.<br><br>Process instrumentation for the WTP consists of seven (7) turbidimeters continuously monitoring the raw water, Actiflo® units (clarified water), filter effluent, treated water and the wastewater clarifier supernatant; one (1) pH meter continuously monitoring the raw water feed to clarifiers after the static mixer, Actiflo® units (at the end of each unit prior to the filters), treated water prior to and after final pH adjustment; one (1) chlorine analyzer monitoring prior to clearwell #1 to provide early indication of changes in residual; two (2) chlorine residual analyzers |

# DWS Component Information Report for 220000923

**as of 27-JAN-2025**

| LWIS Component Name | LWIS Component Type | LWIS Component Sub-Type | Component Address | Comments |
|---|---|---|---|---|
| | | | | continuously monitoring the treated water at the end of the clear wells and before leaving the WTP (on the discharge header); one sulfite ion monitor continuously monitoring the wastewater clarifier supernatant discharge pipe (not in use); and a fluoride ion analyzer continuously monitoring the fluoride residual in the treated water on the distribution header.<br><br>The WTP is further equipped with a standby 600 kW diesel generator complete with fuel storage tank for back-up power. |

# APPENDIX D

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



Ontario

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

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

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

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



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