Manitoba
Conservation and Climate
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba R3H 0W4

OPERATING LICENCE FOR A PUBLIC WATER SYSTEM

LICENCE NUMBER: PWS-09-412-02

THE DRINKING WATER SAFETY ACT CHAPTER D101, C.C.S.M.

WATER SYSTEM CODE: **252.00**

OPERATION ID: **27564**

EFFECTIVE DATE: **DECEMBER 1, 2020**

EXPIRY DATE: **NOVEMBER 30, 2025**

IN ACCORDANCE WITH *THE DRINKING WATER SAFETY ACT*, THIS OPERATING LICENCE IS ISSUED PURSUANT TO SUBSECTION 8(1) TO:

CITY OF WINNIPEG: "THE LICENSEE"

FOR THE OPERATION OF THE **WINNIPEG PUBLIC WATER SYSTEM**, WHICH INCLUDES INTAKE STRUCTURES, AQUEDUCT, TREATMENT FACILITIES, DEACON BOOSTER PUMPING STATION BRANCHES 1 AND 2, MCPHILLIPS, MACLEAN, AND HURST REGIONAL PUMPING STATIONS, WATER STORAGE RESERVOIRS, PUBLIC WATER SERVICE OUTLETS, AND DISTRIBUTION LINES, SUBJECT TO THE ATTACHED TERMS AND CONDITIONS.

THIS LICENCE DOES NOT AFFECT THE LICENSEE'S OBLIGATIONS WITH RESPECT TO COMPLIANCE WITH ALL APPLICABLE MUNICIPAL, PROVINCIAL, AND FEDERAL LEGISLATION. THIS LICENCE SUPERSEDES ALL PREVIOUS LICENSES FOR THIS PUBLIC WATER SYSTEM.

DATE: March 26, 2021

Kim Philip, P.Eng.
Director

TERMS AND CONDITIONS

1. GENERAL

1.1. The Licensee shall operate the public water system in accordance with all applicable requirements of *The Drinking Water Safety Act* and its regulations, and the requirements of this Licence. In the event that specific terms and conditions of this Licence imposed under the authority of subsection 8(3) of the Act exceed the general requirements of the Act and regulations, the specific requirements of this Licence shall apply.

1.2. The Licensee shall obtain approval from the Office of Drinking Water prior to making any significant alterations to the water source, the water treatment process, pumping stations, the water storage facilities.

1.3. The Licensee shall, on an annual basis, apply for a general permit to construct, to address alterations and extensions to the water distribution system built in accordance with standard City of Winnipeg construction specifications.

1.4. This Licence may be amended by the Director where, in the opinion of the Director, an amendment is necessary and the amendment will not negatively impact the safety of water obtained from the water system, or effective environmental management.

1.5. The Licensee may request an amendment to this licence by submitting an amendment application to the Office of Drinking Water.

1.6. This Licence may be suspended or cancelled by the Director for any of the reasons identified in Section 11 of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation* or due to a failure to comply with any term or condition of this Licence.

1.7. The Licensee shall provide written notice to the Office of Drinking Water of any change in ownership of the water system within seven days of the transfer of ownership.

1.8. The Director of the Office of Drinking Water, Medical Officer of Health or Drinking Water Officer may enter any water system facility as necessary to carry out the provisions of *The Drinking Water Safety Act* and its regulations.

1.9. The Licensee shall post a copy of the first page of this Licence at the Winnipeg Water Treatment Plant.

1.10. The Licensee shall keep a copy of this Licence in its entirety at the Winnipeg Water Treatment Plant and the Environmental Standards Laboratory to ensure all operators/staff are familiar with its terms and conditions.

1.11. The Licensee shall apply for renewal of this Licence at least 60 days prior to its expiry.

2. OPERATION GENERAL

2.1. The Licensee shall operate all water system facilities, control systems and equipment as efficiently as possible, inspect them on a regular basis, maintain them in good working order, and ensure that the water system is protected from the risks associated with cross-contamination. This includes the raw/partially treated water cross connections at the water treatment plant.

2.2. The Licensee must maintain an effective Backflow Prevention and Cross Connection Control Program.

2.3. The Licensee must maintain an effective corrosion control program.

2.4. The Licensee shall ensure that all chemicals and components that may come into contact with potable water are certified safe for potable water use through AWWA Standards, ANSI/NSF Standard 60 or 61, Health Canada, or other standards acceptable to the Director.

2.5. The Licensee shall not bring an alternate raw water source into service without the consent of the Drinking Water Officer and the maintenance of adequate cross connection control between the alternate source and the primary source.

2.6. The Licensee shall follow the requirements as specified in Operational Guideline ODW-OG-02 Seasonal Water Systems Start-up Shut-down Procedures for any portions of the distribution system that operate on a seasonal basis.

2.7. The Licensee shall have re-assessments of the water system infrastructure and water supply sources completed by a qualified professional engineer, who is not an employee of the water system, in accordance with terms of reference for engineering assessments by March 1, 2022, and every five years thereafter.

2.8. The Licensee shall, upon request from the Office of Drinking Water, submit or re-submit a compliance plan, in a form satisfactory to the Director, to address any non-compliance issues identified at the time.

3. OPERATION – EMERGENCIES

3.1. The Licensee shall ensure that disinfection and testing is undertaken following construction, repair or maintenance activities on the water system, in accordance with applicable AWWA standards or any other standards approved by the Director. A copy of all associated test results must be kept available for review by the Office of Drinking Water for a minimum of 24 months.

3.2. The Licensee shall ensure that disinfection and testing of temporary water tanks and temporary overland water lines are undertaken prior to going into service in accordance with applicable AWWA standards, or any other standards approved by the Director. A copy of all associated test results must be kept available for review by the Office of Drinking Water for a minimum of 24 months.

3.3. The Licensee shall ensure that all equipment used for disinfection is maintained in effective working order and keep available for immediate use all spare parts and chemical supplies as may be necessary to ensure continuous disinfection, including a spare disinfection unit, if necessary.

3.4. The Licensee shall immediately notify the Office of Drinking Water of any condition that may affect the ability of the water system to produce or deliver safe drinking water including but not limited to treatment upsets or bypass conditions, contamination of the source water or treated water, a disinfection system failure, pumping station failure, contamination of a public water service outlet, or a distribution system failure.

3.5. If a Medical Officer of Health, the Director of the Office of Drinking Water, or a Drinking Water Officer issues a water advisory on the water system, the Licensee shall provide notice of the advisory to all water users in accordance with the Advisory Notification Plan or by a method acceptable to the issuer.

4. WATER QUALITY/TREATMENT STANDARDS

4.1. The Licensee shall operate the water system in a manner that achieves the water quality/treatment standards specified in Table 1, as determined through the monitoring requirements specified in Table 2:

Table 1: Water Quality/Treatment Standards

Parameter	Quality Standard
Total Coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distributed water
E. coli	Less than one *E. coli* bacteria detectable per 100 mL in all treated and distributed water
Chlorine Residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system
Ultraviolet Disinfection Dosage	Greater than or equal to 18.1 mJ/cm^2 in at least 95% of the volume of water produced per month
Bromate	Less than or equal to 0.01 mg/L
Turbidity	Less than or equal to 0.3 NTU in 95% of the measurements in a month of the effluent from each operating filter Not exceed 0.3 NTU for more than 12 consecutive hours of filter operation of the effluent from each operating filter Not exceed 1.0 NTU for any measurement in the effluent from each operating filter
Total Trihalomethanes (THMs)	Less than or equal to 0.10 mg/L as locational running annual average of quarterly samples
Total Haloacetic Acids (HAAs)	Less than or equal to 0.08 mg/L as locational running annual average of quarterly samples
Lead	Less than or equal to 0.005 mg/L based on samples collected at a cold water tap or other appropriate location where water may be used for drinking or food preparation
Manganese	Less than or equal to 0.12 mg/L
Total Microcystins	Less than or equal to 0.0015 mg/L

4.2. If a bacteriological standard is not met, the Licensee shall immediately undertake the applicable corrective actions as listed in “Schedule A” of Manitoba Regulation 41/2007, *Drinking Water Quality Standards Regulation*.

4.3. If a microbial, chemical, radiological, or physical standard is not met, the Licensee shall immediately undertake the applicable corrective actions specified in "Schedule C" of Manitoba Regulation 41/2007*,* the *Drinking Water Quality Standards Regulation.*

4.4. The Licensee must complete a Corrective Actions Report Form when corrective actions have been taken in response to clauses 4.2 and 4.3.

4.5. The Licensee shall have in place and maintain in effective working order, filtration and disinfection equipment and controls designed to provide reduction or inactivation of 99.9% (3-log) of *Cryptosporidium* oocysts and 99.9% (3-log) of *Giardia lamblia* cysts.

4.6. The Licensee shall have in place and maintain in effective working order, filtration and/or disinfection equipment and controls designed to provide reduction or inactivation of 99.99% (4-log) of viruses.

4.7. The Licensee shall maintain in effective working order chlorination and treated water storage equipment and controls designed to achieve a minimum of 20 minutes of effective chlorine contact time prior to water entering the distribution system.

4.8. The licensee shall maintain in effective working order ultraviolet (UV) light disinfection equipment and controls designed to achieve a minimum of 2-log inactivation of *Cryptosporidium* oocysts and *Giardia lamblia* cysts prior to water entering the distribution system.

4.8.1 The amount of water entering the distribution system disinfected outside of this condition must be less than or equal to 4% of the volume of water produced per month.

4.8.2 The amount of water entering the distribution system that does not undergo UV light disinfection due to a power outage or other failure must be less than or equal to 1% of the volume of water produced per month.

5. WATER QUALITY MONITORING

5.1. The Licensee shall ensure monitoring is completed as set out in Table 2.

Table 2: Monitoring Schedule

Parameter	Monitoring Requirement
Bacteriological (total coliform and *E. coli*)	Weekly sampling program with each set of samples consisting of ▪ One raw water sample (water treatment plant) ▪ Two treated water samples (Deacon Booster Pumping Station Branch 1 and Branch 2) ▪ Three distribution water samples (leaving the three regional pumping stations), and ▪ a minimum of 39 distribution system water samples to be taken equally over three separate sampling days and the samples each day must be representative of the entire distribution system
Free Chlorine (treated water)	Continuous sampling (recording measurements at a minimum of five minute intervals) at the water treatment plant downstream of the chlorine contact chamber (Deacon Booster Pumping Station Branch 1 and Branch 2) following a minimum of 20 minutes of contact time

Parameter	Monitoring Requirement
	A confirmatory sample to be taken five days per week downstream of the chlorine contact chamber (Deacon Booster Pumping Station Branch 1 and Branch 2) A minimum of four confirmatory grab samples per week at the same locations is acceptable on weeks containing a statutory holiday
Free Chlorine (distribution system)	One sample to be taken weekly of water entering the distribution system (McPhillips, Maclean, and Hurst Regional Pumping Stations) At the same times and locations as bacteriological distribution system sampling
Total Chlorine (treated water)	One sample to be taken five days per week downstream of the chlorine contact chamber (Deacon Booster Pumping Station Branch 1 and Branch 2) A minimum of four confirmatory grab samples per week at the same locations is acceptable on weeks containing a statutory holiday.
Total Chlorine (distribution system)	One sample to be taken weekly of water entering the distribution system (McPhillips, Maclean, and Hurst Regional Pumping Stations) At the same times and locations as bacteriological distribution system sampling
Ultraviolet Disinfection Dosage	Continuous monitoring of applied UV dosage for each operating UV reactor
UVT (UV transmittance)	Continuous UVT monitoring of the water immediately downstream of the UV reactors for Branch 1 and Branch 2
Turbidity	Continuous monitoring of the raw water (water treatment plant) and a confirmatory sample to be taken daily from the same location Continuous monitoring (recording measurements at a minimum of five minute intervals) from the effluent from each operating particulate filter and a confirmatory sample to be taken five days per week from the same location(s) A minimum of four confirmatory grab samples per week at the same locations is acceptable on weeks containing a statutory holiday.
Turbidity (distribution system)	At the same times and locations as bacteriological distribution system sampling
General Chemistry (parameter list provided by Office of Drinking Water)	One sample set taken on a quarterly basis during February, May, August, and November every year. One sample set consists of: ▪ one raw sample (water treatment plant) and ▪ one treated sample taken alternately from Branch 1 at McPhillips Reservoir and Branch 2 at Hurst Reservoir
Total Metals (distribution system)	Three samples taken at the same times as General Chemistry sampling at mid-points in the distribution system
Bromate (treated water)	One treated water sample taken on a quarterly basis taken alternately from Branch 1 at McPhillips Reservoir and Branch 2 at Hurst Reservoir
Total Trihalomethanes (THMs) (distribution system)	Six preserved samples taken on a quarterly basis during February, May, August, and November, every year at locations agreed upon by the Drinking Water Officer
Total Haloacetic Acids (HAAs) (distribution system)	Six preserved samples taken on a quarterly basis during February, May, August, and November, every year at locations agreed upon by the Drinking Water Officer
Lead	As per ODW-OG-17 Monitoring Lead at the Tap

Parameter	Monitoring Requirement
Manganese	As per ODW-OG-18 Monitoring for Manganese in Drinking Water
Total Microcystins	As per ODW-OG-20 Monitoring for Total Microcystins in Drinking Water
Other Parameters	As per the instructions of a Drinking Water Officer

5.2. The Licensee shall ensure that an accredited laboratory, as specified in section 35 of Manitoba Regulation 40/2007 the *Drinking Water Safety Regulation*, undertake the following analysis required in Table 2:

a) bacteriological (total coliform and *E. coli*)
b) bromate
c) general chemistry
d) total metals
e) total trihalomethanes
f) total haloacetic acids
g) manganese
h) total microcystins
i) lead
j) any other parameter required by the Drinking Water Officer

and that all samples are collected, handled, and submitted in a manner that is satisfactory to the accredited laboratory.

5.3. The Licensee shall ensure that parameters listed in Table 2 but not specified in clause 5.2 are measured utilizing certified water quality monitoring equipment and methods approved by the latest edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Water Works Association and the Water Environment Federation.

5.4. The Licensee shall ensure that all water quality monitoring equipment is properly maintained and calibrated by a qualified person according to manufacturer recommendations and that records are maintained to that effect.

5.5. In instances where continuous disinfectant residual and/or turbidity monitoring equipment is offline, the Licensee shall ensure that a minimum of one sample every 4 hours be tested at each online analyzer sampling point using an approved portable analysis unit and that the results are recorded in a form satisfactory to the Director.

5.6. The Licensee shall ensure that sampling within the distribution system takes place at locations acceptable to the Drinking Water Officer.

6. RECORD-KEEPING AND REPORTING

6.1. The Licensee shall record disinfectant residual and turbidity measurements as specified in Table 2: Monitoring Schedule, and provide a summary of each operating UV reactor, on monthly report forms or other forms satisfactory to the Director.

6.2. The Licensee shall keep one copy of all monthly report forms required in this licence, and forward the original copy to the Drinking Water Officer within seven days after the end of each calendar month.

6.3. The Licensee shall record chlorine and turbidity distribution system measurements specified in *Table 2: Monitoring Schedule* on the chain of custody form (laboratory submission form) which accompanies the bacteriological sample bottles to the laboratory.

6.4. The Licensee shall keep one copy of the Corrective Action Report Form for their records and forward a copy to the Drinking Water Officer with the other monthly reports required by this licence.

6.5. The Licensee shall ensure that water metering devices at the water treatment plant or storage reservoir(s) are maintained in good working order and that water usage records are maintained in a form acceptable to the Director and such records are made available for inspection by a Drinking Water Officer.

6.6. The Licensee shall maintain in a secure location all construction drawings for the life of the water system components.

6.7. The Licensee shall retain in chronological order for a minimum of 24 months all information specified in subsection 34(2) of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation* and any other record made under this licence.

6.8. The Licensee shall ensure the information identified in clause 6.7 is available for inspection by any member of the public during normal business hours at the office of the water supplier or at a location convenient to the users of the system.

6.9. The Licensee shall submit an annual report to the Director by March 31st of each year on the operation of the water system in the immediately preceding calendar year. The report shall include the information as set out in subsection 32(2) of *Manitoba Regulation 40/2007, Drinking Water Safety Regulation*.

6.10. The Licensee shall inform the public, in a form satisfactory to the Director, when an annual report has been prepared and identify how a free copy can be obtained.

6.11. The Licensee shall make a copy of each annual report available to the public at no charge on an internet website within two weeks of the issuance of the report, unless otherwise approved by the Director. The annual report shall remain available to the public for at least one year.

6.12. The Licensee shall maintain and submit an Advisory Notification Plan to the Director by October 1st of each year. The plan must include a detailed description of communication tools and methods to be used to notify the public of a drinking water emergency, considering key contacts, fan-outs, critical customers, susceptible or difficult-to-reach sub-groups, and template notices where applicable.