



## APPROVAL TO OPERATE

### W-1510

Pursuant to paragraph 8(1) of the *Water Quality Regulation - Clean Environment Act*, this Approval to Operate is hereby issued to:

**The City of Saint John**  
for the operation of the  
**Drinking water Treatment and Distribution System**

Description of operation: **The City of Saint John Drinking Water Distribution & Treatment System**

Type of Source: **Surface water and groundwater**

Operation Classification: **Class III WD      Class II WT**

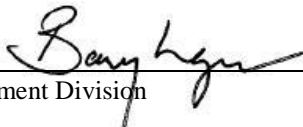
Mailing Address: **P.O. Box 1971  
Market Square  
Saint John, NB E2L 4L1**

Conditions of Approval: **See Schedule "A" of this Approval**

Supersedes Approval: **W-1332**

Valid From: **September 07, 2017**

Valid To: **September 06, 2022**

Recommended by:   
Environment Division

Issued by:   
for the Minister of Environment and Local Government

September 7, 2017  
Date

## SCHEDULE "A"

### A. DEFINITIONS

"**Accredited**" means accreditation to ISO/IEC 17025 by the Standards Council of Canada (SCC), the Canadian Association for Laboratory Accreditation Inc. (CALA), or accreditation to ISO/IEC 17025 from another body that is recognized to grant such accreditation per ISO/IEC 17011 criteria, subject to approval by the *Director*.

"**Approval Holder**" means the entity to which this Approval is issued, as named on the Certificate page of this Approval.

"**Certified**" means a valid certificate of qualification that states the class of the *Operator* issued by the Minister of the New Brunswick Department of Post-Secondary Education, Training and Labour.

"**Department**" means the New Brunswick Department of Environment and Local Government.

"**Director**" means the Director of the Impact Management Branch of the *Department* and includes any person designated to act on behalf of the *Director*.

"**Water Treatment Facilities**" means water treatment unit as defined in the *Water Quality Regulation 82-126*.

"**Operator**" means a person who directs, adjusts, inspects, tests or evaluates an operation or process that controls the effectiveness or efficiency of the waterworks.

"**Operator in Charge**" means direct responsibility designated by the *Approval Holder* for the overall operation and/or repair and/or maintenance of the waterworks.

"**Trained**" means a person who has successfully completed training as described in the Operation & Maintenance section of this Approval.

### B. GENERAL INFORMATION

1. This Certificate of Approval does not relieve the *Approval Holder* from compliance with other bylaws, federal or provincial acts or regulations, or any guidelines or directives pursuant to regulations.

**C. TERMS AND CONDITIONS - SOURCE**

2. The *Approval Holder* shall ensure that operational pumping rate(s) and maximum daily pumping time (if applicable) included in the table below for all potable water sources are not exceeded at any time. The *Approval Holder* shall ensure that the number of hours pumped and either the pumping rate or equivalent water withdrawal are recorded at the frequency listed below.

Source	Operational Pumping Rate <sup>(1)</sup>	Max Water Withdrawal (m <sup>3</sup> /d)	Max Daily Pumping Time (hrs/d)	Flow Monitoring Frequency <sup>(2)</sup>
PW1	12.5 ML/day	9000	n/a	Daily
PW2	(1909.5 igpm)	9000	n/a	Daily
PW3	combined	9000	n/a	Daily
Ocean Drive	7.00 L/s (92.4 igpm)	604.8	n/a	Daily
Seaward Cr.	7.00 L/s (92.4 igpm)	604.8	n/a	Daily

igpm: imperial gallons per minute  
L/s: litres per second  
ML/day: million litres per day  
m<sup>3</sup>/d: cubic metres per day

- (1) *Maximum pumping rates have been derived from the Wellfield study for the City of Saint John (2009), for Ocean Drive and Seaward Crescent, and the South Bay Wellfield Environmental Impact Assessment (2015) for PW1, PW2, and PW3.*
- (2) *Daily means as a minimum 5 days per week.*
- (3) *12.5 ML/day operational pumping rate for the South Bay Wellfield is to be averaged over a running annual basis (i.e. a maximum of 4562.5 ML pumped over 365 days)*
3. The *Approval Holder* shall notify the *Director* in writing when any municipal drinking water source will be re-activated or initiated. Start-up of such a source cannot be undertaken until approval is received from the *Director*.
4. The *Approval Holder* shall ensure that any well that has, or may have, been contaminated as a result of construction, servicing or maintenance is disinfected, sampled and tested for microbiological parameters to verify the effectiveness of disinfection according to the latest version of "AWWA C654, Disinfection of Wells". All samples collected must be tested by a laboratory *Accredited* for *E. coli* and Total Coliform and records of all such activities, including disinfection records and microbiological results, must be maintained.

## **D. TERMS AND CONDITIONS - TREATMENT**

5. The *Approval Holder* shall ensure that any *Water Treatment Facilities* temporarily taken out of service for cleaning, inspection, maintenance, painting, repair or any other activity that might lead to contamination of water are disinfected, sampled and tested for microbiological parameters to verify the effectiveness of disinfection according to latest version of "AWWA C653, Disinfection of Water Treatment Plants". All samples collected must be tested by a laboratory *Accredited* for *E. coli* and Total Coliform and records of all such disinfection activities and microbiological results must be maintained.

## **E. TERMS AND CONDITIONS - OPERATION & MAINTENANCE**

6. The *Approval Holder* shall ensure that cleaning products used in the vicinity of the waterworks shall be approved for use in the food processing industry.
7. The *Approval Holder* shall ensure that all chemicals added to the drinking water meet the safety criteria and are certified to NSF/ANSI Standard 60: Drinking Water Treatment Chemicals, or an equivalent food grade standard, as approved by the *Director*.
8. The *Approval Holder* shall ensure that all new materials and equipment installed or added that come into contact with the drinking water meet the safety criteria and are certified to NSF/ANSI Standard 61: Drinking Water System Components, or an equivalent food grade standard, as approved by the *Director*.
9. The *Approval Holder* shall ensure that construction and/or as-built drawings for the waterworks are maintained and made available to the *Department* upon request.
10. The *Approval Holder* shall ensure that mitigation measures in the Abbreviated Wellfield Monitoring Plan are followed as soon as the South Bay production wells are brought on-line. A detailed monitoring and mitigation plan must be submitted for review and approval **within one year** of the wells being brought on-line.
11. The *Approval Holder* shall notify the *Director* within one (1) business day when the *Operator in Charge* leaves the employ of the *Approval Holder* or is placed on extended leave. A transition plan must be submitted to the *Director* within thirty (30) days after the first day that the waterworks is without an *Operator in Charge*.
12. The *Approval Holder* shall ensure that the waterworks is operated and maintained by a *Trained Operator* at all times. All recently-hired operators must work under the direct supervision of a *Trained Operator* until such time as the appropriate training is completed.
13. The *Approval Holder* shall ensure that if a *Trained Operator* is not available to operate and maintain the waterworks, the *Approval Holder* shall immediately notify the New Brunswick Department of Health.

**During normal business hours, contact the New Brunswick Department of Health’s Regional Office.**

**After hours, or when a person cannot be spoken to directly, contact the: NB Department of Health After Hours Phone Number.**

Health Region	Business Hours Phone Number	After Hours Phone Number
South - <i>Region 2</i> (Saint John and area)	(506) 658-3022	(506) 658-2764

**WATER DISTRIBUTION SYSTEM – TRAINING AND CERTIFICATION**

14. The *Approval Holder* shall ensure that all water distribution system *Operators* complete the New Brunswick Community College Water Distribution Fundamentals Program, the California State University Water Distribution System Operation and Maintenance course, or an equivalent, as approved by the *Director*, in accordance with *Water Quality Regulation 82-126*, section 19.
15. The *Approval Holder* shall ensure that the certification level of the *Operator in Charge* is at least equivalent to the classification of the water distribution system.
16. The *Approval Holder* shall employ, as a minimum, the following *Certified Operator(s)* based on the Class of the water distribution system listed on the Certificate page of this Approval.

Water Distribution Class	Water Distribution (WD) <i>Certified Operator(s)</i>
I	Minimum one Class I
II	Minimum two; one Class II and one Class I
III	Minimum two; one Class III and one Class II
IV	Minimum two; one Class IV and one Class III

**WATER TREATMENT FACILITIES – TRAINING AND CERTIFICATION**

17. The *Approval Holder* shall ensure that all water treatment *Operators* complete the New Brunswick Community College Treatment Operation Fundamentals Program, the California State University Treatment Plant Operation (Volumes I & II) course, or an equivalent, as approved by the *Director*, in accordance with *Water Quality Regulation 82-126*, section 19.
18. The *Approval Holder* shall ensure that the certification level of the *Operator in Charge* is at least equivalent to the classification of the *Water Treatment Facilities*.
19. The *Approval Holder* shall employ, as a minimum, the following *Certified Operator(s)* based on the Class of the *Water Treatment Facilities* listed on the Certificate page of this Approval.

<b>Water Treatment Class</b>	<b>Water Treatment (WT) <i>Certified Operator(s)</i></b>
I	Minimum one Class I
II	Minimum two; one Class II and one Class I
III	Minimum two; one Class III and one Class II
IV	Minimum two; one Class IV and one Class III

**F. TERMS AND CONDITIONS - MONITORING & ALARMS**

20. The *Approval Holder* shall ensure that access to the waterworks is restricted to authorized personnel only.
21. The *Approval Holder* shall ensure that all on-line and portable monitoring equipment is calibrated in accordance with manufacturer’s recommendations. Records of calibration activities shall be kept and made available to the *Department* upon request.
22. The *Approval Holder* shall use laboratories that are *Accredited* for all parameters listed and tested for as part of the Sampling Plan, approved under the *Potable Water Regulation 93-203*.
23. The *Approval Holder* shall ensure that the drinking water supplied to the users meets the New Brunswick Maximum Acceptable Concentrations, for the parameters listed in the Sampling Plan, approved under the *Potable Water Regulation 93-203*.
24. The *Approval Holder* shall monitor all of the parameters included in the table below at the locations and frequencies specified.

Parameter	Min. No. of Locations	Minimum Frequency
Free Chlorine Residual	11 distribution system sites (East)	Once per week <sup>(1)</sup>
	9 distribution system sites (West)	Once per week <sup>(1)</sup>
	1 control site (East)	5 days per week
	1 control site (West)	
Water Production	Surface water	Monthly
Water Production	Ground water	Daily
Water Level	3 South Bay Wellfield sources	Daily
Turbidity	Latimer Lake	5 days per week

1) *Monitoring at the distribution system sites must be distributed evenly throughout the week on a minimum of 4 separate days*

25. The *Approval Holder* shall submit an annual report for the reporting period of January to December to the *Director*, no later than March 1<sup>st</sup> of the following year. The report shall include the following (if applicable):
- a) monitoring results for parameters required in this Approval including daily or weekly water production;
  - b) monthly water production in m<sup>3</sup>;
  - c) water usage (flowmeter), and water level data for the South Bay production wells;
  - d) operational highlights (significant incidents & system improvements, changes or additions);
  - e) alarm log;
  - f) summary of backflow prevention and cross-connection control activities;
  - g) summary of flushing activities;
  - h) *Operator* information (training, certification & staffing changes);
  - i) public relations (notifications & public education);
  - j) list of new extensions and/or renewals complete with analytical results (microbiological, organic & inorganic); and
  - k) additional comments.
26. The *Approval Holder* shall be required to continuously monitor and record, with measurements taken at no more than five-minute intervals, turbidity and free chlorine residual with online instrumentation entering the distribution system. All monitoring equipment (turbidity and chlorine) must be alarmed and equipped with an automatic notification system. Please see Emergency Response - Public Health Emergencies for the notification process in the event of an exceedence or system failure.
27. The *Approval Holder* shall be required to monitor and record the water level in each South Bay production well, to ensure that the water level in each well does not drop below +1m above mean sea level (amsl) more than 100 days/year with a maximum of 20 consecutive days. Each production well shall be set up to have an alarm that is triggered when the water level drops below +1m above mean sea level.
28. The *Approval Holder* shall ensure that the chlorination and turbidity monitoring equipment alarm systems are kept in operating condition. Any alarm system malfunction or breakdown shall be repaired or corrected immediately.
29. The *Approval Holder* shall maintain an alarm log, which will include the nature, date and time of the alarm, and the response and correction action undertaken by the municipality for all critical alarms such as a disinfection system malfunction, low chlorine residual, or high turbidity. The alarm log shall be made available to the *Department* upon request.

## **G. TERMS AND CONDITIONS - DISTRIBUTION SYSTEM**

30. The *Approval Holder* shall ensure that a free chlorine residual of no less than 0.1 mg/L be maintained at the entry point of the distribution system and that a free chlorine residual of no less than 0.04 mg/L be maintained at all other points within the distribution system.

31. The *Approval Holder* shall ensure that newly constructed or repaired water mains are disinfected, sampled and tested for microbiological parameters to verify the effectiveness of disinfection according to the latest version of "AWWA C651, Standard for Disinfecting Water Mains". All samples collected must be tested by a laboratory *Accredited* for *E. coli* and Total Coliform and records of all such disinfection activities must be maintained.
32. The *Approval Holder* shall ensure that all water-storage facilities entered for construction or inspection purposes (including underwater inspections) are disinfected, sampled and tested for microbiological parameters to verify the effectiveness of disinfection according to the latest version of "AWWA C652, Disinfection of Water Storage Facilities". All samples collected must be tested by a laboratory *Accredited* for *E. coli* and Total Coliform and records of all such disinfection activities must be maintained.
33. The *Approval Holder* shall possess a drinking water storage reservoir water quality maintenance plan developed by a Professional Engineer licensed to practice in the Province of New Brunswick. The plan shall include the frequency and method of inspection, as well as screen integrity and sediment mitigation. The *Approval Holder* shall ensure that the drinking water storage reservoirs are maintained in accordance with the reservoir water quality maintenance plan. Inspection reports must be approved by a Professional Engineer licensed to practice in the Province of New Brunswick and submitted to the *Department* **within two (2) months** of receipt by the *Approval Holder*.
34. The *Approval Holder* shall ensure that all known sources of cross-connection between municipal potable water and sewer systems are eliminated in a timely manner.
35. The *Approval Holder* shall ensure that all water mains are flushed to standards established within the flushing plan submitted to the *Department*.
36. The *Approval Holder* shall ensure that all temporary watermains must be constructed of NSF approved materials for potable water supply. Prior to bringing temporary water networks online, the watermains must be disinfected, flushed, and tested at an *Accredited* laboratory for Total Coliform and *E. coli* according to "AWWA Standard C651, Standard for Disinfecting Water Mains". While in use, samples must be collected weekly from each independent temporary watermain network, and analyzed at an *Accredited* laboratory for Total Coliform and *E. coli*. Fire hydrants used for the purpose of supplying water shall be equipped with backflow prevention assemblies. A file containing the start and stop dates, disinfection records and water quality results must be maintained for each temporary watermain network and shall be made available to the *Department* upon request.



## H. TERMS AND CONDITIONS - EMERGENCY RESPONSE

### CONTINGENCY PLAN

37. The *Approval Holder* shall maintain a Contingency Plan. The Contingency Plan must follow (as a minimum) the *Department's* Municipal Drinking Water Contingency Plan Outline and be available at key locations.
38. The *Approval Holder* shall, in writing, provide an after-hours contact name and number to the *Director*. The *Approval Holder* shall also provide notification to the *Director* within one (1) business day if either the contact name or number is changed.

### PUBLIC HEALTH EMERGENCIES

39. The *Approval Holder* shall **immediately** notify the **New Brunswick Department of Health** of any actions or events that lead, or may lead, to the deterioration of water quality in the distribution system and impact, or may impact, the health and/or safety of the users of the system. The *Approval Holder* also must contact the **New Brunswick Department of Environment and Local Government within one (1) business day** of the emergency. Such activities or events include but are not limited to:
  - Detection of *E. coli* or Total coliform that exceed the New Brunswick Maximum Acceptable Concentrations (MAC) in a drinking water sample (other than raw water prior to disinfection);
  - Inability to maintain disinfection (malfunction of disinfection system, sudden or unexplained drop in chlorine residual);
  - Increases in turbidity beyond normal operating conditions or any turbidity measurement that exceeds the New Brunswick MACs;
  - Scheduled or unscheduled maintenance that impacts water quality;
  - Whenever a watermain is wholly or partially dewatered;
  - Losses of water pressure that result, or may result, in backflow occurrences or impact water quality; and
  - Introduction of foreign contaminants.

The *Approval Holder* is advised that any action or event that has the potential to introduce contaminants, effect water quality or compromise the health and/or safety of users of the system not specifically listed above must also be immediately reported to the New Brunswick Department of Health.

### CONTACT INFORMATION FOR IMMEDIATE NOTIFICATION

**During normal business hours, contact the New Brunswick Department of Health's Regional Office.**

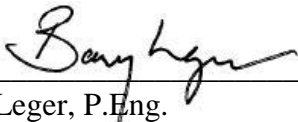
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NB Department of Health After Hours Phone Number.**

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**CONTACT INFORMATION FOR NEXT BUSINESS DAY NOTIFICATION**

**During normal business hours, contact the:**  
**NB Department of Environment and Local Government Head Office (Fredericton)**  
**at (506) 453-7945**

Prepared by:

  
\_\_\_\_\_  
Barry Leger, P.Eng.  
Approvals Engineer

