



## Small Drinking Water Systems: Who Does What in Quebec?

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### 1.0 Source Water Protection

#### 1.1 Who has a stewardship role related to water source protection (lead agency)?

*Ministry of Sustainable Development, Environment, Wildlife and Parks* (MDDEFP):

*Government* may make regulations to:

- establish the duties, rights and obligations of users and of the operator relating to the running and operation of a waterworks or sewer system and prohibit any act detrimental to the running and operation thereof;
- subordinate the tapping of underground water, including water that is in danger of contamination, to the authorization of the *minister (Sustainable Development, Environment, Wildlife and Parks)* which may be subject to any condition the *minister* considers necessary.

No one may establish waterworks, a water supply intake or water purification appliances or carry out work respecting sewers or the installation of devices for the treatment of waste water before submitting the plans and specifications to the *minister (Sustainable Development, Environment, Wildlife and Parks)* and obtaining his authorization.

The *minister (Sustainable Development, Environment, Wildlife and Parks)* may make, with respect to a person operating a waterworks, sewer system, or water treatment plant, such orders as he considers appropriate respecting the quality of service, the extension of the system, the reports to be made, the mode of operation, the rates, and any other matters under his power of supervision and control.

#### 1.2 Who oversees liquid and solid waste management?

The *minister (Sustainable Development, Environment, Wildlife and Parks)* may, as regards a municipality, issue those orders he deems necessary in matters respecting the supplying of drinking water and the management of wastewater.

#### 1.3 Who is responsible for land use planning activities (from livestock to farming practices, including activities addressing drinking water concerns)?

For immovables in a reserved area or agricultural zone, distribution systems supplying water that consists in whole or part of surface water that undergoes no treatment by flocculation, slow filtration, or membrane filtration and does not meet regulations:

- *persons in charge* must be authorized, under the *Environment Quality Act*, to carry out the work required to have the systems meet requirements;
- *persons in charge* must send to the *Minister of Sustainable Development, Environment, Wildlife and Parks*, no later than 60 days after the end of the work, an attestation from an *engineer* (a member of the Ordre des ingénieurs du Québec) that work carried out enables the systems to meet the requirements;
- *persons in charge* must, until the date the attestation is received by the *minister*, collect (on a weekly basis for the facilities of municipalities and intermunicipal boards; monthly for other facilities) at least one sample of raw water at each surface water catchment site and send samples for testing for presence of *Escherichia coli* bacteria to an accredited *laboratory*;
- *persons in charge* must, no later than January 28, April 28, July 28, and October 28 of each year, send to the *minister* a report containing (for each previous quarter) results of testing, elimination percentages of viruses and parasites calculated by an *engineer* (member of Ordre des ingénieurs du Québec) using data entered in the record, as well as events and microbiological sources of pollution likely to have reduced the quality of the raw water;
- The *minister (Sustainable Development, Environment, Wildlife and Parks)* must, every subsequent five years, report to the *government* on the implementation, in particular on the advisability of amending the standards of quality of drinking water after considering the scientific and technical knowledge current at the time. That report shall be made available to the *public* not less than 15 days after it has been sent to the *government*.

Erection or layout of a raising facility or animal waste storage facility is prohibited:

- less than 30 m from any groundwater catchment work intended to supply water for human consumption;
- in the bacteriological protection area of a groundwater catchment site, if water is deemed to be vulnerable or the DRASTIC vulnerability index is equal to or greater than 100 over any portion of that area.

Storage, directly on the ground, of animal waste, farm compost, or fertilizing waste substances in a crop field is prohibited:

- less than 300 m from any groundwater catchment work intended to supply water for human consumption;
- in a bacteriological protection area of a groundwater catchment site, if water is deemed to be vulnerable or the DRASTIC vulnerability index is equal to or greater than 100 over any portion of that area.

Storage in a cultivated field, directly on the ground, of sludge from municipal wastewater treatment works or from any other treatment or collection works of a sanitary wastewater system, or substances containing sludge, is prohibited within the virological protection area of a groundwater catchment site if the water is deemed to be vulnerable or the DRASTIC vulnerability index is equal to or greater than 100 over any portion of that area. Storage prohibition does not apply to sludge or substances containing sludge certified to comply with the CAN/BNQ 0413-200 or CAN/BNQ 0413-400 standards.

#### **1.4 Who is responsible for ensuring that activities such as construction of highway infrastructure, logging, or mining neither degrade source waters nor introduce contaminants into the water supply?**

Application to the *minister (Sustainable Development, Environment, Wildlife and Parks)* for authorization to carry out a project must be made in writing and contain the following information/documentation:

- pertinent contact information (for person, legal person/association, proprietorship, etc.);
- certified true copy of deed (for municipality);
- cadastral description of lots where project will be carried out;
- intended use of water drawn;
- total flow rate of groundwater intended to be drawn each month in a year;
- titles of ownership, uses of lots within 30 m radius from site where groundwater catchment work will be installed;
- attestation issued by the *Minister of Natural Resources and Wildlife* related to mining right likely to be granted;
- (for groundwater catchment work located on lands in domain of the State) letter from the *Minister of Natural Resources and Wildlife* indicating the minister's intention to agree to a lease with an applicant with respect to installation of infrastructures related to groundwater catchment activities.

### 1.5 Who delivers permits to draw water?

The *Ministry (Sustainable Development, Environment, Wildlife and Parks)* delivers permits to draw water.

### 1.6 Who has control over watershed and delineates the watershed/aquifer area?

The *Ministry (Sustainable Development, Environment, Wildlife and Parks)* through Groundwater Regulation (*Environment Quality Act*).

### 1.7 Who is responsible for watershed/aquifer management plan? (The plan establishes measures to reduce risks. The watershed management plan may also include an incident and emergency response plan, plan for water conservation, and contingency plans for dealing with water scarcity emergencies).

*Owners of spring/mineral water (bottled water) or groundwater catchment sites* supplying more than 20 persons must take measures necessary to maintain groundwater quality by:

- delimiting an immediate protection area established within a radius not less than 30 m from the catchment work. The area may be smaller if a hydrogeological study signed by an *engineer* (member of Ordre des ingénieurs du Québec) or *geologist* (member of Ordre des géologues du Québec) shows the presence of a natural protection barrier (e.g., layer of clay);
- installing a safety fence (at least 1.8 m high) at the boundaries of the immediate protection area of a catchment site with the average flow rate greater than 75 m<sup>3</sup> per day;
- posting a notice at the catchment site to indicate the presence of a groundwater system intended to supply water for human consumption;
- prohibiting (within the immediate protection area) activities, facilities or deposits of materials or objects likely to contaminate groundwater; except equipment necessary to operate a catchment work, when installed safely;
- carrying out the finishing grade, within the immediate protection area, to prevent the percolation of water.

*Owners* of spring/mineral water (bottled water) or groundwater catchment sites intending to supply drinking water with an average operation flow rate greater than 75 m<sup>3</sup> per day, must

have the following documents signed by an *engineer* (member of Ordre des ingénieurs du Québec) or *geologist* (member of Ordre des géologues du Québec):

- the plan showing the location of the supply area;
- the plan showing the location of the bacteriological protection area and the virological protection area which correspond to the portions of the supply area of the catchment site as defined by using a migration time of groundwater over 200 days (bacteriological protection) and over 550 days (virological protection);
- the assessment of vulnerability of groundwater within the areas (defined above) by applying the DRASTIC method;
- the inventory of activities and works located within the areas defined that are likely to alter the microbiological quality of groundwater, such as wastewater treatment systems, works or sites for storing/spreading of animal waste or farm compost, yards of feedlots.

For catchment sites operated for drinking water supply purposes (average flow rate 75 m<sup>3</sup> per day; supplying more than 20 people), the bacteriological protection area shall be set within a 100 m radius from the catchment site; the virological protection area shall be set within a 200 m radius.

Owners must keep inventory up-to-date and information must be available upon request to the *minister (Sustainable Development, Environment, Wildlife and Parks)*; copy of documents must be given to the *local municipality* where the catchment site is located.

Subject to the *minister's (Sustainable Development, Environment, Wildlife and Parks)* authorization for groundwater catchment projects:

- having a capacity less than 75 m<sup>3</sup> per day intended to supply more than 20 persons (must include hydrogeological study establishing impact of the project on environment, other users, and public health<sup>\*</sup>);
- intended to supply water to be distributed or sold as spring or mineral water or to be an ingredient in manufacturing, conservation or processing and stated as spring or mineral water on a product within the meaning of the *Food Products Act* or on the package, container or label of such a product (must include hydrogeological study establishing impact of the project on environment, other users, and its food safety<sup>\*</sup>);
- having a capacity of 75 m<sup>3</sup> or more per day or that will bring the capacity to more than 75 m<sup>3</sup> per day (must include hydrogeological study establishing impact of the project on environment, other users, and public health<sup>\*</sup>).

Application to the *minister* for authorization to carry out a project must be made in writing and contain the following information/documentation:

- pertinent contact information (for person, legal person/association, proprietorship, etc.);
- certified true copy of deed (for municipality);
- cadastral description of lots where project will be carried out;
- intended use of water drawn;
- total flow rate of groundwater intended to be drawn each month in a year;
- titles of ownership, uses of lots within 30 m radius from site where groundwater catchment work will be installed;
- attestation issued by the *Minister of Natural Resources and Wildlife* related to mining right likely to be granted;

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<sup>\*</sup> Studies/reports must be signed by *engineer/geologist* who is a member of the Ordre des ingénieurs/géologues du Québec; plans/specifications of catchment facilities must be signed by an *engineer* of the Ordre des ingénieurs.

- (for groundwater catchment work located on lands in domain of the State) letter from the *Minister of Natural Resources and Wildlife* indicating the minister's intention to agree to a lease with an applicant with respect to installation of infrastructures related to groundwater catchment activities.

(See section 4.0 Waste Management.)

### 1.8 Any source vulnerability assessment and ranking?

There is a project underway for the *Ministry (Sustainable Development, Environment, Wildlife and Parks)* regarding source water assessment. There is an evaluation of vulnerability and activities at risk regarding ground water protection.

Quebec's water protection program stands alone in affirming that water is a collective good and has strong treatment regulations, but SWP is not as advanced as in other provinces, according to the Ecojustice report (2012), which awarded Quebec a "B-" grade.<sup>1</sup>

## 2.0 Water Treatment and Distribution

### 2.1 Any lead funding organization for water system planning and infrastructure improvements?

The *Ministry (Sustainable Development, Environment, Wildlife and Parks)* with a *committee* (comprised of: at least two MDDEP engineers, two engineers from Ministère des Affaires municipales et des Régions [MAMR], a coordinator, and experts from the university field) to assess drinking water treatment technologies and determine their level of development and the *committee coordinator* to act as the official representative in dealing with suppliers.

### 2.2 Any construction permits?

The *Ministry (Sustainable Development, Environment, Wildlife and Parks)* requires a Certificate of Authorization before construction begins.

### 2.3 Any fee collected for water distribution?

The *municipality* has the choice of paying through property tax or metering. The *Quebec government* has passed a bylaw to charge for water drawn for bottled water businesses and for industrial use.

### 2.4 Any operator permit? Any training? How are new policies disseminated?

Every *person operating* a waterworks, sewer or water treatment system who has not obtained, under any former law, an operating permit must submit to the *committee coordinator (Sustainable Development, Environment, Wildlife and Parks)* an application for the analysis of their technology, along with a complete technical file. This procedure must be followed for assessment of new technologies and for the modification of an existing technical assessment sheet. Applications will not be examined unless the documents submitted meet the requirements set out in the assessment procedure. Applications that do not meet requirements will be rejected.

<sup>1</sup> <http://www.ecojustice.ca/publications/files/canadas-drinking-water-report-card-infographic-1>

Every municipality, with the authorization of the *minister* and on the conditions he or she determines, may grant to a person an exclusive privilege, the term of which shall not exceed 25 years, to establish and operate a water treatment plant (franchise).

*Minister* may revoke a permit of operation where a waterworks and sewer system is not operated in conformity with the standards prescribed by regulation of the government.

## 2.5 Any assessment of treatment system? Any licence of treatment system? By whom?

All duties relating to operation and monitoring of a catchment, treatment or distribution facility for water intended for human consumption, including duties relating to supply by tank truck, must be carried out by a certified person (i.e., a person who holds a diploma, certificate, or other attestation recognized by *Minister of Education, Recreation and Sports* or by *Emploi-Québec* or the *minister responsible for Emploi-Québec* for the production or distribution of water intended for human consumption; attestations or certificates issued by *Emploi-Québec* or minister responsible for *Emploi-Québec* must be renewed every five years; this also applies to persons responsible for collecting water for analysis, unless employed by a laboratory accredited for that purpose by the *Minister of Sustainable Development, Environment, Wildlife and Parks*).

Each technology submitted to the *MDDEP Committee* is assessed on the basis of:

- technical developments provided by the promoter according to the technological development level;
- complexity of the technology with regard to equipment design and operation;
- performance results based on pilot tests, existing facilities, and related implementation conditions.

Each technology submitted is subject to an assessment procedure that consists of four separate phases or levels of development:

- technology at the experimental level;
- technology at the pilot-scale demonstration level;
- technology at the full-scale validation level;
- technology at the mature level.

Note: The committee will not begin to assess a technology until the first two development levels have been completed and until a complete technical file is submitted in support of the application.

## 2.6 Who is responsible for maintenance and upgrade of water treatment?

All maintenance and repair work on a distribution facility for water intended for human consumption, and all stages involved in putting distribution facilities into service after remedial or extension work must be carried out by, or under immediate supervision of, a certified person (i.e., a person who holds a diploma, certificate, or other attestation recognized by the *Minister of Education, Recreation and Sports* or by *Emploi-Québec* or the *minister responsible for Emploi-Québec* for the production or distribution of water intended for human consumption; attestations or certificates issued by *Emploi-Québec* or the minister responsible for *Emploi-Québec* must be renewed every five years; this also applies to persons responsible for collecting water for analysis, unless employed by a laboratory accredited for that purpose by the *Minister of Sustainable Development, Environment, Wildlife and Parks*).

The *committee (MDDEP)* evaluations do not relieve the *promoter* or the technology or the design *engineer* of their obligations, guarantees, and responsibilities with regard to the implementation of the technology. Neither the *committee*, nor the two *government departments* concerned, may be held responsible for the adverse performance of a water



treatment system designed on the basis of the information contained in the technical assessment sheet.

## 2.7 Any requirements for the water supply system?

The *government* may make regulations to:

- regulate the production, sale, distribution and use of any water purification device and any product or material for establishing or operating a waterworks, sewer, or water treatment system;
- prohibit or regulate the distribution by volume of water intended for human consumption;
- prescribe standards respecting the volumes of water collected, water quality, and the preservation of water quality.

To be considered by the *MDDEP Committee*, technology must meet the following criteria:

- technology must comply with Quality of Drinking Water Regulation standards or, where target parameters are not standardized, the Guidelines for Canadian Drinking Water Quality;
- any materials required by the technology that come into contact with water must be certified NSF 61 or must comply with the appropriate standards of the Bureau de normalisation du Québec;
- any chemicals used in the processes must be certified NSF 60 or approved by *Health Canada*.

Water supplied by a *distribution system* must have undergone a continuous filtration and disinfection treatment if it comes in whole or in part from surface water or from groundwater whose microbiological quality is likely to be altered by surface water because of the non-permeability of collection or storage facilities.

Treatment prescribed by this section must be able to eliminate at least 99.99% of viruses, 99.9% of *Giardia* cysts, and 99% of *Cryptosporidium* oocysts.

Filtration treatment is not mandatory where raw water that supplies the distribution system meets the following conditions:

- turbidity is lower than or equal to 5 NTU;
- at least one sample of water per week is collected for a period of not less than 120 consecutive days, at least 90% of the samples have fewer than 20 fecal coliform bacteria per 100 ml of water collected, and the average turbidity over 30 consecutive days is lower than 1 NTU;
- one sample of raw or supplied water is collected at least once a month for a period of not less than 120 consecutive days and none of the disinfection by-product analysis parameters following simulation of the treatment and distribution conditions shows a concentration greater than the standards of quality of drinking water;
- quality of that water is not likely to be altered by contaminants from wastewater collection or treatment systems, or from agricultural activities such as the storing or spreading of livestock waste.

Continuous disinfection treatment facility of water supplied by a distribution system must, if it comes from groundwater, be able to eliminate at least 99.99% of viruses.

For any other groundwater disinfection treatment or oxidation facility, the *person in charge of the facility (owner/operator)* must, every month, collect or have at least one sample collected of the raw water taken or stored that supplies the facility to test for the presence of *Escherichia coli* bacteria.

### **3.0 Drinking Water Quality and Monitoring**

#### **3.1 Who is the lead agency for drinking water quality?**

Regulation respecting the quality of drinking water is primarily the *Ministry of Sustainable Development, Environment, Wildlife and Parks* (MDDEFP).

The *government* may make regulations to:

- classify waters;
- define physical, chemical, and biological water quality standards according to its different uses for all or part of the territory of Quebec.

#### **3.2 Who defines water quality standards?**

The *Ministry of Sustainable Development, Environment, Wildlife and Parks* (MDDEFP) defines water quality standards.

The *government* may make regulations to:

- define physical, chemical, and biological water quality standards according to its different uses for all or part of the territory of Quebec;
- determine, for every class of contaminant or source of contamination, the maximum quantity or concentration, the discharge of which is allowed into water, either for all the territory or for a region, constant or intermittent watercourse, lake, pond, marsh, swamp, bog, or underground body of water;
- determine the standards of quality for any source of water supply and the standards of operation for any waterworks, sewer, or water treatment service.

#### **3.3 Who is responsible for administering drinking water regulations, if any?**

The *owner/operator* of a distribution facility is required to send to the *Minister of Sustainable Development, Environment, Wildlife and Parks* a signed declaration containing the information in Schedule 3 (declaration by person in charge of a distribution facility). The *owner/operator* must also send to the *minister* any changes to that information.

#### **3.4 Who enforces regulations, if any?**

The *government* through the *Minister of Sustainable Development, Environment, Wildlife and Parks*.

The *MDDEP Committee Coordinator* (see 3.5) is the official representative in dealing with suppliers.

#### **3.5 Who ensures the accountability of government and water suppliers?**

The *government* through the *Minister of Sustainable Development, Environment, Wildlife and Parks*.

*The MDDEP Committee:*

- assesses new technology or implementation to determine if its level of development complies with the Quality of Drinking Water Regulation;
- drafts technical assessment sheets for new treatment technologies and publishes them on the MDDEP website.



*The committee coordinator* is the official representative in dealing with suppliers.

**3.6 Who is responsible for the assessment of public water supply systems? (Identify critical points within the treatment process for effective monitoring, control, and management including determining treatment efficiency in the removal or inactivation of harmful agents found in the source water.)**

The *owner/operator* must, for the control of total coliform bacteria and fecal coliform bacteria or *Escherichia coli* bacteria, collect or have samples of the water supplied collected according to the frequency determined in the following:

- 21 – 1,000 users                      two minimum samples/month
- 1,001 – 8,000 users                      eight minimum samples/month

Samples collected from the tap where water is put at disposal of users, after the water has run for at least five minutes and, for the same day of sampling, from the tap of different users. Where possible, those samples shall be spread in equal numbers over each of the weeks in the month; if the number of samples is less than four, they shall be collected at an interval of at least seven days. At least 50% of the samples must be collected at the outermost limits of the distribution system.

The *owner/operator* of a distribution system, in whole or in part from non-disinfected groundwater having a vulnerability index for the bacteriological protection area that is greater than 100 using the DRASTIC method, must collect or have one sample collected of the raw water taken or stored that supplies the distribution system at least once a month to test for the presence of *Escherichia coli* bacteria and enterococci bacteria, if works or activities likely to alter the microbiological quality of the water are present within the bacteriological protection area of the catchment site established on the basis of a 200-day groundwater migration time.

The *owner/operator* of a distribution system, in whole or in part from non-disinfected groundwater having a vulnerability index for the virological protection area that is greater than 100 using the DRASTIC method, must collect or have one sample collected of the raw water taken or stored that supplies the distribution system at least once a month to test for the presence of specific coliphage viruses, if works or human activities such as a sewer system, the spreading of septic tank sludge or a domestic waste water infiltration field likely to alter the microbiological quality of the water are present or are carried on within the virological protection area of the catchment site established on the basis of a 550-day groundwater migration time.

The *owner/operator* must, for the purpose of testing for inorganic substances listed (other than nitrates+nitrites and nitrites, chloramines, and bromates), collect or have at least one sample of the water supplied collected annually between July 1st and October 1st, or if the distribution system is not in service from July 1st to October 1st, at any other period when it is in service.

The *owner/operator* must also, for the purpose of testing for nitrates+nitrites, collect or have at least one sample of the water supplied collected annually during each of the quarters beginning respectively on January 1st, April 1st, July 1<sup>st</sup>, and October 1st, with a minimum interval of two months between samplings. Results are entered in the analysis request form furnished by the *Minister of Sustainable Development, Environment, Wildlife and Parks*. If analysis of a water sample shows that the pH value is lower than 6.5 or greater than 8.5, the *owner/operator* must immediately inform the *minister* and describe the measures implemented to assess and, if required, control the corrosion in the distribution system.

If water supplied is treated by ozonation, the *owner/operator* must, for the purpose of testing for bromates, collect or have at least one sample of the water supplied collected annually

between July 1st and October 1st, or if the distribution system is not in service from July 1st to October 1st, at any other period when it is in service.

If water supplied is disinfected with chloramines, the *owner/operator* must also collect or have at least one sample of the water collected for the purposes of measuring, during the sampling, the concentration of chloramines and enter the results in the analysis request form furnished by the *Minister of Sustainable Development, Environment, Wildlife and Parks*.

For a system that supplies chlorinated water, the *owner/operator* must (testing for trihalomethanes) have at least one sample collected during each of the quarters respectively (on January 1, April 1, July 1, and October 1) with a minimum interval of two months between samplings. If in any one quarter more than one value is obtained, the average for that quarter will be used. Owner/operator must, during each sampling, measure the quantity of free residual disinfectant in water sample collected for that purpose and enter the result in the analysis request form furnished by the *Minister of Sustainable Development, Environment, Wildlife and Parks*.

For turbidity control, the *owner/operator* must have at least one sample collected per month at the central point of the distribution system.

Every continuous disinfection treatment facility (ozone, chlorine dioxide, chlorine, chloramines) must have a device that:

- takes continuous measurements of the free residual disinfectant concentrations installed at the outlet of each continuous disinfection treatment unit. The device must have an alarm system capable of warning of a breakdown or that the lamp intensity has fallen below the required level;
- takes continuous measurements of turbidity of water installed downstream of each filtration unit or, in the absence of filtration, at the outlet of the facility.

The *owner/operator* of a distribution facility that has a continuous disinfection treatment facility must record each day:

- lowest concentration of free residual disinfectant measured in the period;
- measurement of water volume and flow rate in disinfection reserves corresponding to lowest free residual disinfectant concentration;
- measurement of turbidity;
- water temperature;
- water pH if chlorine is used as a disinfectant;
- date/names of persons taking measurements.

This record must be signed by the *owner/operator* and kept in paper form for a minimum of two years, and made available to the *minister*.

The *owner/operator* of tank truck that supplies drinking water must:

- adhere to the same obligations as those for the person in charge of a distribution system;
- collect samples at the outlet of the tank; in territories north of 55<sup>th</sup> parallel, samples collected at reservoir;
- fill tank with water that complies with standards of quality set;
- ensure the tank water has, at all times, a concentration of free residual chlorine equal to or greater than 0.2 mg/L;
- at least once a day, measure the quantity of free residual chlorine in a water sample collected at the tank outlet;
- maintain a record of date, measurement results, name of person taking measurements, origin of water – data kept for a minimum of two years and made available to the *minister*;

- ensure that the tank used to supply drinking water is not used to transport other materials likely to contaminate the water.

### 3.7 Any approval process for newly built water treatment systems?

The *government* may make regulations to:

- determine construction standards for waterworks, sewer, and water treatment systems.

Any project to build or modify drinking water treatment facilities serving more than 20 people must receive authorization from the *Ministry (Sustainable Development, Environment, Wildlife and Parks)*.

The *Ministry (Sustainable Development, Environment, Wildlife and Parks)* has the following documents available on the MDDEP website to guide various stakeholders during the authorization process for drinking water treatment systems:

- content of applications for authorization for drinking water production facility projects;
- standards setting procedure for bringing drinking water production facilities and distribution systems up to standard;
- design guidelines for drinking water production facilities.

Note: Technical assistance sheets published by MDDEP do not constitute certification or any form of accreditation.

### 3.8 Who is responsible for monitoring the water system? Any source water monitoring?

The *operator* of a waterworks system, and the operator of a public, commercial or industrial establishment supplied with water by a supply source independent of a waterworks system, shall, in making water available to the public or to his employees for human consumption, supply drinking water only to the extent and in accordance with the standards provided by regulation of the *government*.

The *operator* must take samples of the water he or she supplies to the public or to his or her employees and forward the samples collected to any *laboratory* accredited by the *minister* for the purposes of analysis.\*

Water samples must be collected and preserved in accordance with methods described in "Methods for Taking and Preserving Samples for the Application of the Regulation" respecting quality of drinking water, published by the *Minister of Sustainable Development, Environment, Wildlife and Parks*.

Every person who collects, or has a water sample collected, must sign the analysis request form furnished by the *Minister of Sustainable Development, Environment, Wildlife and Parks* to certify that sampling, and preservation and sending of a sample to the *laboratory* accredited by the *minister*, have taken place in compliance with requirement of Regulation.

Water samples collected must be sent for analysis to *laboratories* accredited by the *Minister of Sustainable Development, Environment, Wildlife and Parks*, under the *Environment Quality Act*. Analysis request forms, furnished by the *minister* must also be sent with samples.\*\*

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\* Water samples collected must be analysed in accordance with methods described in "Standard Methods for Examination of Water and Wastewater," published by American Water Works Association, the Water Environment Federation and the American Public Health Association.

Note: North of 55<sup>th</sup> parallel, any northern village constituted under the *Act* respecting northern villages and the Kativik Regional Government is considered to be a laboratory accredited by the *minister* under the *Environment Quality Act*.)

The *laboratory* sends to the *Minister of Sustainable Development, Environment, Wildlife and Parks* the results of analyses of water samples and data entered in the analysis request forms within 10 days of sampling (regarding control of micro-organisms) free residual disinfectant or turbidity; within 60 days with samples for control of other parameters.

The *government* may by regulation:

- prescribe the frequency and other requirements regarding the taking and forwarding of samples, taking into account the size of the waterworks system or the type of public, commercial, or industrial establishment;
- limit the territory of application of any regulation.

The *laboratory* accredited by the *minister* must require, from the *operator*, payment for analyses requested by the *minister*.

### 3.9 In case of adverse quality standards, who notifies whom (government, public, water supplier)?

The *laboratory* must immediately inform:

- *person in charge of distribution system/owner, operator of tank truck* of any water showing the presence of fecal coliform bacteria or *Escherichia coli* bacteria, total coliform bacteria, enterococci bacteria or F-specific coliphage viruses;
- *person in charge of distribution system/owner, operator of tank truck* if water does not comply with one of the other standards of quality or contains more than 80 µg/L of trihalomethanes;
- *Minister of Sustainable Development, Environment, Wildlife and Parks* and *regional public health director* (as soon as possible during working hours) of presence of fecal coliform bacteria or *Escherichia coli* bacteria, enterococci bacteria, or F-specific coliphage viruses, non-compliance with one of the other standards of quality or contains more than 80 µg/L of trihalomethanes.

Failure of coagulation system, sedimentation system, filtering system, disinfection system, or entire treatment system – the *person in charge* must immediately inform the *Minister of Sustainable Development, Environment, Wildlife and Parks* and *regional public health director* and describe necessary remedial measures.

The *person in charge* of distribution system with continuous disinfection treatment facility, where the standards have been exceeded, must immediately implement remedial measures and inform the *minister* as soon as possible (during working hours) and the *regional public health director*.

Where the water at the disposal of a *user* does not comply with standards of quality, the *person in charge of distribution system or owner/operator of tank truck* must notify the *Minister of Sustainable Development, Environment, Wildlife and Parks* and *regional public health director* of the measures taken to remedy the situation and, where applicable, to protect the users from risks involved; also notify the person in charge of another distribution system connected to/supplied by this system.

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\*\* Person who analyses the sample must certify that the analysis was carried out in accordance with methods required and submit on the analysis request form, furnished by *Minister of Sustainable Development, Environment and Parks*; kept and made available to the *minister* for minimum of two years.

If the water contains fecal coliform bacteria or *Escherichia coli* bacteria, the *person in charge of the distribution system or owner/operator of tank truck* is required to notify the *users* using the media, by sending individual written notices, or by any other appropriate means, that the water is unfit for consumption and of the precautions to be taken, including an advisory to boil water for at least one minute before it is ingested. If the *users* include health and social services institutions or educational institutions, they must be notified individually. The *Ministry of Agriculture, Fisheries and Food* entrusted under the *Food Products Act* with protecting the health and safety of consumers, must also be immediately notified if institutions are affected.

With an enterprise, educational system, correctional facility, health and social services institution or tourist establishment, the *person in charge* must post a notice at each place in the institution where water is made available for consumption purposes and interrupt any water service from drinking fountains supplied with contaminated water; notify the users within the facility or enterprise. The notice shall be given at least every two weeks until it is shown that water supplied is free from total coliform bacteria and complies with standards, with respect to other analyzed microorganisms.

If water from the distribution system (including the supply from another distribution system with a boil water advisory) or tank truck does not comply with one of bacterial parameters, the *owner/operator* must, over two days separated by less than 72 hours, collect or have the minimum number of samples collected for bacteriological monitoring of water supplied. With disinfected water, owner/operator also measure, in each collected sample, the quantity of free residual disinfectant and enter the results in the analysis request form furnished by the *minister*.

With non-disinfected water, revealing the presence of fecal coliform bacteria or *Escherichia coli* bacteria, at least two samples of raw groundwater taken or stored must be collected per day, separated by at least two hours, for at least one day, to test for presence of *Escherichia coli* bacteria and enterococci bacteria.

The *owner/operator* shall inform any person or institution as soon as the water is again in compliance with the standards of quality.

If the quality of the water put at the disposal of the *user* shows a gross alpha activity greater than 0.1 Bq/L or a gross beta activity greater than 1 Bq/L, the *person in charge/owner operator of truck tank* must take necessary remedial measures to enable testing for presence of radioactive substances in the water.

*Every person* (including *owner/operator of a distribution system or tank truck*) who puts water, intended for human consumption that does not comply with the standards of quality set out, at the disposal of a user, or who enters false or inaccurate data in a record, report, or other document is liable to a fine (\$2,000 to \$20,000 in case of a natural person; \$4,000 to \$40,000 in case of a legal person).

Should the performance level of one or more facilities, authorized on the basis of a technical assessment sheet, at the full-scale validation or mature level, fail to meet expectations, after the results have been examined, the technical assessment sheet may be temporarily removed from the MDDEP website and the *MDDEP* will issue no further authorization for that technology unless the necessary corrections have been made. If a technology is modified by the promoter subsequent to a failure to meet anticipated performance levels, the promoter must submit a new application to the *committee* for the assessment of the modified technology. The new application must be supported by data covering at least six months of continuous operation with the modified technology.

#### **4.0 Waste Management (also part of source water protection)**

The *government* may make regulations to:

- prohibit or limit the dumping into any sewer system of any matter that it considers harmful;
- determine the mode of discharging and treatment of waste water.

Special Provisions for Farming Areas:

Spreading of animal waste, farm compost, mineral fertilizer, and fertilizing waste substances is prohibited:

- less than 30 m from any groundwater catchment work intended to supply water for human consumption – the distance is increased to 100 m for sludge from municipal wastewater treatment works or from any other treatment/collection works of a sanitary wastewater system, or for substances containing such sludge, and the sludge or substances are not certified to comply with CAN/BNQ 0413-200 or CAN/BNQ 0413-400 standards;
- within the bacteriological protection area of a groundwater catchment site (except fertilizing waste substances certified to comply with standards above) if water is deemed to be vulnerable or the DRASTIC vulnerability index is equal to or greater than 100 over any portion of that area – spreading of sludge from municipal wastewater treatment works or from any other treatment/collection works of a sanitary wastewater system, or for substances containing such sludge, is prohibited within the virological protection area of a groundwater catchment site if water is deemed to be vulnerable or the DRASTIC vulnerability index is equal to or greater than 100 over any portion of that area (spreading prohibition does not apply to sludge/substances certified to comply with standards);
- on the periphery of the areas to prevent runoff into those areas (except fertilizing waste substances certified to comply with CAN/BNQ 0413-200 or CAN/BNQ 0413-400 standards).

The *municipality* may prohibit (by municipal by-law made under the *Act* respecting land use planning and development) the spreading of animal waste, farm compost, mineral fertilizer, and fertilizing waste substance in defined portions of the supply area of a catchment work supplying a drinking water distribution system, if nitrate concentration in water from a groundwater catchment site exceeds 5 mg/L for two consecutive tests carried out within the scope of periodic testing provided.

The *owner* of catchment site must, if periodic testing shows a nitrate concentration greater than 3 mg/L:

- notify *farm operators* who use parcels that intersect with the supply area of the catchment site;
- for a catchment site the average flow rate of operation of which is lower than 75 m<sup>3</sup> per day, use parcels that intersect with bacteriological and virological protection areas.

#### **5.0 Surveillance**

##### **5.1 Any process in place to respond to health complaints?**

In Quebec, alerts on health are addressed by the *regional public health authorities DRSP*. Outbreaks of disease or poisoning related to contamination (microbiological and chemical) of drinking water are reviewed by the DRSP regional public health authorities and, where appropriate, epidemiological investigations are conducted. Data on waterborne diseases are



collected via the system of mandatory reporting diseases (MADO) in accordance with the *Act on public health* in the context of an integrated surveillance system.

## 5.2 Any outbreak surveillance system in place?

Information on exceedances of standards (microbiological and chemical) is transmitted by the laboratories accredited by the DRSP MDDEFP concerned in accordance with the regulation respecting the quality of drinking water. Depending on the importance of these exceedances, prevention or health protection are taken: boil water advisory, non-consumption, recommendations to the MDDEFP to correct the problems, etc. In addition, public information tools on the prevention of health risks associated with drinking water (boil water, trihalomethanes, etc.) are used.

Continuously, the Scientific Panel on Water National Institute of Public Health (INSPQ) works with the MSSS and MDDEFP to review quality standards for drinking water and collaborate with the ministry to periodically update the regulation respecting the quality of drinking water (e.g., revision of the standard for lead, arsenic, etc.).

## 5.3 Any system in place to link outbreaks to source or system characteristics?

See Sections 5.1 and 5.2 above. The investigations of the DRSP can deepen to determine, in collaboration with the MDDEFP, the links between these outbreaks and the state of contamination of the drinking water.

## 5.4 Who is responsible for managing outbreaks?

*Municipalities* and *public health officers* manage outbreaks.

## 6.0 What is the Role of the Community in the Provision of Safe Drinking Water?

The *minister* may order a *municipality* to temporarily operate the waterworks and sewer system of a person and carry out any work with respect to it, in accordance with the conditions fixed by him or her, where he or she considers it necessary to ensure an adequate service to the users. The order may also fix the apportionment of the cost, related to the operation or work, among the users or among the users and the person.

The *minister* may, where he or she considers it necessary for the protection of public health, order a *municipality* to acquire such a system, by agreement or by expropriation, or to install a new waterworks and sewer.

The *owner/operator* shall inform any person or institution as soon as the water is again in compliance with the standards of quality.

## References/Notes

*Environment Quality Act* R.S.Q., c. Q-2

Regulation respecting the quality of drinking water, O.C. 647-2001, 2001 T.O. 2, 2641

Regulation respecting waterworks & sewer services, R.R.Q. 1981, c. Q-2, r.7

Groundwater Catchment Regulation, O.C. 696-2002, 2002 G.O. 2, 2657

And reference to:

- Quebec Water Policy: Water. Our Life, Our Future (2002)
- Drinking Water Treatment Technologies Assessment Procedure (October 2008)

For more information, visit the website of the INSPQ on drinking water and the MSSS and MDDEFP water:

<http://www.inspq.qc.ca/pdf/publications/198-CartableEau/default.asp?E=p> (sheets summaries of drinking water)

<http://www.mddefp.gouv.qc.ca/eau/potable/index.htm>

[http://www.msss.gouv.qc.ca/sujets/santepub/environnement/index.php?eau\\_potable](http://www.msss.gouv.qc.ca/sujets/santepub/environnement/index.php?eau_potable)

*Note that while the National Collaborating Centre for Environmental Health has used its best efforts to ensure the accuracy and reliability of this information, it is provided as a general reference only. Please contact federal, provincial, municipal, and other agencies noted to verify information provided.*

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