FAQ - Municipal Drinking Water Services

General Information

What are municipal/public water supplies?

Each province defines a municipal or public water supply differently. It is normally a centralized water service that serves a prescribed number of people. Throughout much of Canada these systems are operated by municipalities, however, an increasing number are being operated and in some cases owned by private companies.

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How many Canadians are served by municipal/public systems?

It is estimated that in 1999, 26.5 million Canadians received central water services.

How are they governed?

The governing of drinking water in Canada falls under provincial/territorial jurisdiction.

The provinces and territories are responsible for developing and enforcing all legislation pertaining to municipal and public water supplies including their construction and operation.

Are municipal/public drinking water supplies safe?

Municipal water suppliers generally conform to the Guidelines for Canadian Drinking Water Quality and are required to obtain a Certificate of Approval for their treatment plant and distribution systems, which is related to the water source and the market served. This Certificate sets out testing and maintenance requirements. These facilities are further required to undergo routine testing and maintenance and to keep detailed records. Municipal water supplies under normal operating conditions, pose no risk to human health. On occasion, however, despite the best efforts of water suppliers and in some cases for reasons beyond their control, municipal water supplies can become contaminated either chemically or biologically. If this occurs, residents will be advised to take precautionary measures, such as boiling water before consuming it.

What are the Guidelines for Canadian Drinking Water Quality?

The *Guidelines for Canadian Drinking Water Quality* published by Health Canada on behalf of the Federal Provincial Territorial Subcommittee on Drinking Water, establishes the health-based parameters for drinking water quality that are used by the provinces and territories to establish standards or objectives within each province or territory. They cover three types of parameters: microbiological, chemical and aesthetic.

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Operator Certification

What is operator certification?

In 1972, Environment Canada and the Federation of Associations on the Canadian Environment (FACE) sponsored a workshop attended by all provincial and territorial jurisdiction to establish a system of classifying all water and wastewater distribution, collection and treatment systems. This would also include a process of evaluating and certifying system operators (certification, education and training (CET) committee).

Also in 1972, the Association of Boards of Certification (ABC) was formed supported by the American Water Works Association and Water Pollution Control Federation (now the Water Environment Federation) to improve and promote operator certification and promote uniformity of standards and practices in operator certification throughout the United States.

In 1974, the Canadian group met in Charlottetown and adopted a set of guidelines for operator certification programs. ABC system was not adopted at that time because there was no flexibility in their certification system to make minor adjustments or recognize small systems. Since then, ABC's standards have evolved satisfied the needs of the provincial and territorial certification systems. Today the following provinces and territories are members of ABC:

Atlantic Canada Water and Wastewater Voluntary Certification Program (Newfoundland & Labrador, Nova Scotia, Prince Edward Island, New Brunswick)

Ontario Water and Wastewater Operator Licensing Program

Manitoba Water and Wastewater Association

Saskatchewan Operator Certification Program

Alberta Environment

British Columbia Environmental Operators Certification Program

Northern Territories Water and Wastewater Association

However the majority of the provinces and territories utilitize the sixteen generic Canadian standardize exams produced by ABC. The following summary identifies the status of the operator certification programs in the various provinces and territories.

What provinces require certified operators?

Certified Operators are required in the following provinces and territories:

Alberta Potable Water Regulations

British Columbia Safe Drinking Water Regulations

Nova Scotia Water and Wastewater Facility Regulations

Ontario Water Works and Sewage Works Regulations

Saskatchewan Water Pollution Control and Waterworks Regulations

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Water Quality

What influences water quality?

Water quality is profoundly and primarily affected by the nature and condition of the water source itself, somewhat affected by the materials used in the water systems infrastructure and by the treatment processes used.

Water from aquifers (groundwater) is generally considered to be microbiologically safe - the water entering them from the surface is filtered by passing through many metres of soils and geological layers. However, groundwater is also likely to be affected by the geological structure and may be hard (containing calcium ions) or have arsenic, iron, manganese, or other chemicals in them which may have to be removed.

Surface water from lakes or rivers on the other hand is presumed not to be microbiologically safe as it is likely to contain organic and fecal materials washed off land surfaces (particularly in farming areas but also from wild animals) and are also likely to be turbid (from very fine soil particles) or coloured by natural dyes and acids (from decomposing vegetation).

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Treatment Requirements

Why does water need to be treated?

Treatment technology and processes have been developed for municipal water systems to address microbiological, chemical and aesthetic issues with the raw water. Where the source water is a deep aquifer with a protected aquifer recharge area using deep wells and protected well heads, provincial authority is often granted for the system to simply pump the water from the ground and deliver it directly to customers of the water utility without even disinfection.

What treatment is required of municipal/public water systems?

Municipal water suppliers generally conform to the Guidelines for Canadian Drinking Water Quality and are required to obtain a Certificate of Approval for their treatment plant and distribution systems, which is related to the water source and the market served. This Certificate sets out testing and maintenance requirements. These facilities are further required to undergo routine testing and maintenance and to keep detailed records.

Is disinfection of municipal water supplies required

Disinfection of water supplies is required in the following provinces:

Alberta	all systems must provide disinfection

British Columbia	all surface water supplies and any ground water that, in the opinion of a drinking water officer, is at risk of containing pathogens must be disinfected
Manitoba	surface water supplies and groundwater under the influence of surface water must be disinfected
Newfoundland	all community water supplies
Northwest Territories	all surface water, and any groundwater that may be subject to contamination in the well or in storage reservoirs or mains
Nunavut	all surface water, and any groundwater that may be subject to contamination in the well or in storage reservoirs or mains
Ontario	all surface supplies, and groundwater unless an exemption is obtained
Prince Edward Island	no requirements - however drinking water is solely from groundwater sources
Québec	all surface water systems, any systems served by groundwater that are under the influence of surface water
Saskatchewan	mandatory disinfection

What additional treatment requirements are placed on municipal/public water supplies?

Many of the provinces state specific treatment requirements in a facilities certificate of approval. However, the Province of Québec requires that municipalities using surface water supplies, provide both filtration and disinfection, groundwater only disinfection if under influence of surface water. The Government of Ontario requires disinfection and filtration of surface water supplies.

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Testing and Monitoring Water Quality

What is an accredited lab?

An accredited laboratory requires an ongoing demonstration of performance, evaluated through proficiency testing twice a year.

Capability is tested every two years through lab audits. Accreditation is given jointly by the Standards Council of Canada (a government agency) and Canada's National Accreditation Program for Environmental Laboratories (CAEAL), through a program called the Program for the Accrediation of Laboratories (PALCAN).

Which provinces require accredited labs for their water testing?

Alberta, British Columbia, New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec, and Saskatchewan.

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Residential Water Treatment Devices

What type of residential treatment units are there?

There are two types of residential treatment devices available to consumers - Point-of-Use (POU) or Point-of-Entry (POE) devices. Some devices may be connected with other devices to form a treatment system . POU devices typically treat water in batches, for a single tap such as a kitchen sink faucet, or an auxiliary faucet mounted next to the kitchen sink. POE devices treat all water entering the home, prior to its distribution through the plumbing system - they are normally located immediately following the water meter, if any.

Residential water treatment devices can be installed in homes serviced by municipal water supply or in homes served with private water supply. Special consideration should be given to choosing and installing treatment devices in either case. In the former, because the municipal water supply will not normally require treatment other than perhaps to address aesthetic qualities such as taste and odour. For homes that are using private water supply, the likely need for a residential water treatment devices is greater as the water supply may need filtering, softening, or disinfection, etc before it should be used.

There are six broad categories of treatment devices: particle filters, water softeners and greensand filters, disinfection devices, carbon filters, reverse osmosis devices, and distillation devices. They will be described in subsequent information sheets.

When should I use a residential treatment unit?

Manufacturers of many of these devices recommend that they be used only on water which is coming from a municipal source or from water which is known to be microbiologically safe. In all cases, potential users of these devices should know what is the quality of their water supply before determining that any device is needed, or which device or devices should be installed or used. In the

case of municipal supplies, the water utility itself can and will provide this information on demand if it is not already published in a consumer confidence report or on their web site. In the case of private water supplies, the home-owner should have a comprehensive set of tests completed on the water source.

Which device should I buy?

The intended purpose and capability of the device will be described by the manufacturer in the specification sheets that come with the device or on its packaging, along with any specific performance claims such as for the removal of chemical contaminants. Performance claims are discussed in the next section of this fact sheet. Potential users of any home treatment device or system, should carefully read the manufacturers' specification sheets and performance claims before selecting and using any particular device. In addition, the owner of the device should maintain the device in accordance with the manufacturer's recommendations in order to ensure safe water quality.

Some devices may be certified as meeting requirements as set by such organizations as the Canadian Water Quality Association or the U.S.-based Water Quality Association (which are Associations of the manufacturers or distributors of such devices) as meeting the ANSI/NSF1 Standards of performance for the removal or reduction in the level of contaminants in, or redressing the aesthetic qualities of the water being treated2. For a drinking water treatment system to become NSF Certified, it must meet five basic requirements:

1. Any contaminant reduction claims are true.
2. The system does not add anything harmful to the water.
3. The system is structurally sound.
4. The advertising, literature and labeling are not misleading.
5. The materials and manufacturing process used do not change.

For more information download the CWWA infosheet on residential treatment units.

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