



Canada

Wastewater Management Regulations

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Wastewater Management in Canada

In Canada, there are approximately 4000 wastewater collection and treatment systems. Most wastewater systems are owned and operated by municipalities. Many municipalities have implemented sewer use bylaws to control the release of certain substances in wastewater effluents at the source. Wastewater receives various levels of treatment, ranging from no treatment to advanced tertiary treatment. As a result, wastewater quality and the amount of pollutants released to the environment vary across Canada.

The Government of Canada owns, operates or funds a number of federal wastewater treatment and collection systems and is responsible for managing risks posed by substances listed under the *Canadian Environment Protection Act, 1999 (CEPA 1999)* and for protecting fish and fish habitat from harm caused by deleterious substances under the *Fisheries Act*.

2008 Proposal for Standardized System in Canada

Environment Canada is taking steps to develop a standardized system for wastewater management in Canada. The Canadian Council of Ministers of Environment (CCME) agreed to develop a Canada-wide strategy for the management of municipal wastewater effluents. The strategy will provide the federal government, the provinces and territories with a set of common objectives for the management of wastewater effluents, including limits for the discharge of specific substances and a clear understanding of roles and responsibilities. Environment Canada intends to implement the Canada-wide strategy by developing federal regulations under the *Fisheries Act* and CEPA 1999 which will apply to wastewater effluents across the country, including those discharged from systems located on Aboriginal and federal land. The planned regulations are expected to include national performance standards and site-specific standards, where necessary.

Federal Guidelines and Regulations

Specific federal laws and guidelines that are applied to wastewater systems across the country include:

1. *Fisheries Act: Subsection 36 (3)* states that no one shall deposit or permit the deposit of a deleterious substance (i.e. substances that are toxic or harmful to fish, fish habitat, or fishery resources) of any type in water frequented by fish". The *Fisheries Act* allows for the establishment of federal regulations under subsection 36(5) of the Act, or under another federal Act, that would permit the discharge of deleterious substances to levels set out in the regulations. At this time, there are no federal regulations that apply to wastewater effluents. No other legislation provides an exemption to the *Fisheries Act*.
2. *Canadian Environmental Protection Act, 1999(CEPA 1999)*: CEPA 1999 allows Environment Canada to establish limits on the quantity of "toxic" substances permitted to be in wastewater

discharged to surface waters. Toxic substances already identified under CEPA 1999 include inorganic chloramines, chlorinated wastewater effluents, ammonia dissolved in water, textile mill effluents, nonylphenol and its ethoxylates and a number of other industrial chemicals. In 2004, Environment Canada published the Notice Requiring the Preparation and Implementation of Pollution Prevention Plans for Inorganic Chloramines and Chlorinated Wastewater Effluents. The Notice applies to owners of wastewater systems where the effluent release to surface water is greater or equal to 5000 cubic meters per day. Requirements for the development of pollution prevention plans and a guideline have been implemented as part of an overall risk management strategy that seeks to ensure that wastewater effluents do not pose unacceptable risks to human health and the environment.

3. *Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, Environment Canada, 1976*: The Guidelines were developed to specify the degree of treatment and effluent quality applicable to all wastewater discharged from existing and proposed federal establishments. The guideline provides specific limits for biochemical oxygen demand, suspended solids, chlorine residual and several other parameters. It states that secondary treatment or equivalent should be the minimum acceptable level of treatment.

Specific limits in the *Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments* states that effluents discharged to receiving waters should receive treatment such that an effluent of the following **minimum** quality is achieved:

Effluent	Quality
5 day Biochemical Oxygen Demand	20 mg/L
Suspended Solids	25 mg/L
Fecal Coliforms (MF method)	400 per 100 mL (after disinfection)
Chlorine Residual	0.50 mg/L minimum after 30 minutes contact time ⁽¹⁾ 1.00 mg/L maximum
pH	6 to 9
Phenols	20 micrograms/L
Oils & Greases	15 mg/L
Phosphorus (Total P.)	1.0 mg/L ⁽²⁾
Temperature	not to alter the ambient water temperature by more than one degree Centigrade (1°C) ⁽³⁾

¹ Applicable where chlorination is used for disinfection purposes; see Section 5.3

² Applicable where phosphorus removal is required

³ Applicable at perimeters of mixing zone: see Section 4.6

Provincial Regulations

British Columbia

It is important that US manufacturers of wastewater management products and services understand the difference in provincial regulations. In British Columbia, the *Local Government Act* and *Community Charter* enable local governments to provide wastewater services. Two provincial agencies regulate wastewater in BC:

1. The Ministry of Environment uses the Municipal Sewage Regulation of the *Environment Management Act* to regulate large community wastewater systems.
2. The Ministry of Health uses the Sewerage System Regulation of the *Health Act* to regulate smaller, generally private, domestic sewerage systems, including on-site septic systems.

Ontario

The Ontario Water Resources Act requires that the Ontario Ministry of Environment issue Certificates of Approval (permits) to wastewater treatment plants which outline the conditions they must abide by to allow for continued operation. The Certificate of Approval process ensures that the environment is not adversely affected by wastewater activities. Operation without a Certificate of Approval is illegal. Each certificate differs in conditions and requirements and all requirements are dependent on the receiver stream. Each site specific permit will contain general policies on the quality of water discharge, but the limits will vary.

Effluent requirements within the Province of Ontario are determined under the provisions of Procedure B-1-1: "Water Management-- Guidelines and Procedures of the Ministry of Environment and Energy (The "Blue Book")". In accordance with the procedures outlined in that publication, effluent requirements are established on a case-by-case basis considering the characteristics of the receiving water body, as well as Federal and Provincial effluent regulations and procedures, where applicable. These are considered base level requirements as the Ontario Minister of Environment may require wastewater companies to go above and beyond these requirements.

Quebec

The Quebec [Ministry of Environment](#) regulation Q-2, r.8 states that as of December 31 2005 wastewater treatment systems used for isolated dwellings in the province of Quebec must be certified according to the *BNQ Standard NQ 3680-910 Wastewater Treatment - Stand-alone Wastewater Treatment Systems for Isolated Dwellings*. There are five types of treatment covered by the BNQ standard and it is the only known standard with requirements for coliform (Treatment Class III, IV, V).

Class and Type of Treatment	Maximum Effluent Concentration			
	Total Suspended Solids (TSS), mg/l	Carbonaceous Five-Day Biochemical Oxygen Demand (CBOD5), mg/l	Fecal Coliform Organisms CFU/100 ml	Total Phosphorus, mg/l
I Primary treatment	100	not applicable	not applicable	not applicable
II Secondary treatment	30	25	not applicable	not applicable
III Advanced secondary treatment	15	15	50 000	not applicable
IV Tertiary treatment with phosphate removal	15	15	50 000	1
V Tertiary treatment with disinfection	15	15	200	not applicable

Opportunities for U.S. Firms

It is important for U.S. companies to understand the significance of Canada's environmental industry. Valued at more than \$18.4 billion, the environmental market in Canada consists of some 8500 firms generating environmental exports worth more than \$1.5 billion per year. Small firms (fewer than 100 employees) form the majority (96%) of the country's environmental firms.

Environmental firms located throughout Canada:

- Ontario – 43.4%
- Quebec – 18.8%
- Alberta – 15.2%
- British Columbia – 12.5%
- Manitoba/Saskatchewan – 4.8%
- Atlantic Canada – 4.9%
- Territories - 0.2%

U.S. companies providing cost effective environmental technologies related to wastewater management should be aware of the different provincial regulations for dealing with municipal wastewater. Once Canada standardizes its systems, expected to be in place by late 2008, US firms are in a strong competitive position to assist Canadian companies and municipalities meet these regulations.

For More Information

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