

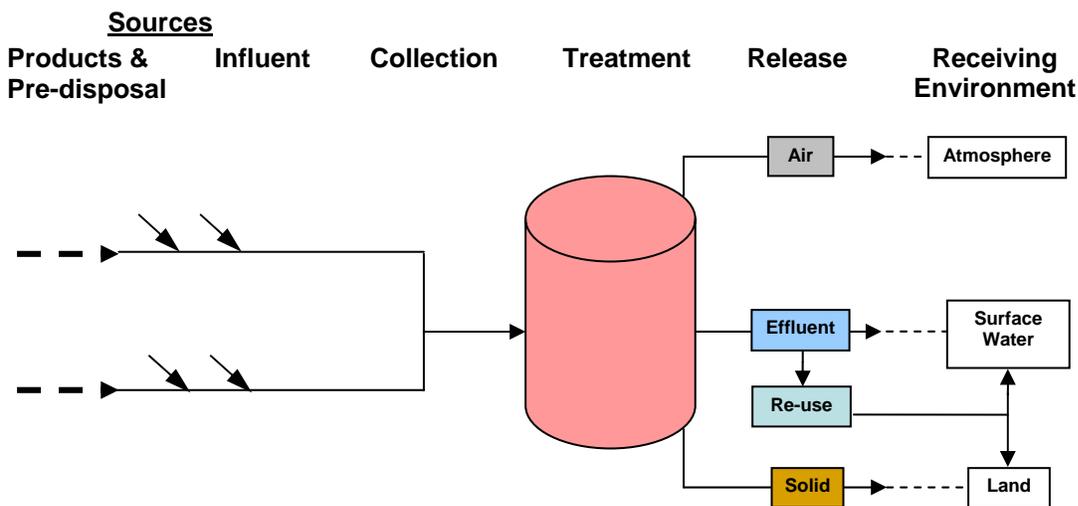
Executive Summary

Review of Existing Municipal Wastewater Effluent (MWWE) Regulatory Structures in Canada

The purpose of this report is to document, summarize, and analyze current and imminent regulatory measures for MWWE in Canada for several government jurisdictional levels including: federal and aboriginal; provincial and territorial; and, municipal regional and local levels. The focus of this study is on the current status (as of early 2005) of the regulatory structures, with insights to changes planned within about the next twelve months.

Exhibit ES.1 following indicates the analytical framework used as a basis for analysis of results of this study. The framework identifies six components of a generic municipal wastewater system. Each component is more fully defined within the text (attached, section 2.2).

Exhibit ES.1



A total of 46 jurisdictional profiles were developed through interviews and written responses from jurisdictional representatives. Two federal profiles were developed: one profile as the government of the nation and a second as facility / landowner / ultimate Water Board authority in the Territories of Nunavut and North West Territories and as funder of Aboriginal infrastructure (Federal House). In addition, profiles were developed for 10 provinces, 3 territories, 3 Aboriginal communities and 28 municipalities. Profiles are provided in Appendices A through E (full text is attached).

Federal and Aboriginal Lands Structure

The federal regulatory structure has two key pieces of legislation of particular importance to MWWE: the *Canadian Environmental Protection Act 1999* and the *Fisheries Act*. In addition, in its national role, the federal government negotiates international agreements that in some cases have implications for municipal management of wastewater collection and treatment systems. Examples of such agreements include the Kyoto Protocol and the Great Lakes Water Quality Agreement. The federal government also has Federal House responsibilities that it manages primarily through the use of the *Fisheries Act* and federal guidelines. These responsibilities include Aboriginal Lands. An exception to the use of guidelines applies in Nunavut and the Northwest Territories where Water Boards, under the direction of

the department of Indian and Northern Affairs (INAC), issue permits for municipal wastewater facilities. All federal Acts and Regulations also apply to Federal House facilities.

Provincial Structure

Table ES.1, summarizes the variety of practices adopted by the provinces in managing municipal wastewater systems and effluents. As can be seen from this table, there is no aspect of MWW treatment management for which all provinces share a common approach. This table provides an overview only; refer to Appendix C for more detailed information.

Table ES.1. Provincial Overview

Province	Delegates Authority for Municipal Sewer Use Bylaws	Regulates Back-stop/ support for Municipal Sewer Use Bylaws	Collection System: Provincial Approval/ Permit for Construction	Collection System: Approval/ Permit for Operation	Treatment Plant: Provincial Approval/ Permit for Construction	Release to water
NL	No	N/A	Required	Planning an Operations Permit	Yes; 2 year limit	Permit required; environmental and fiscal considerations
PEI	Yes	Yes	Required	Guidelines for I/I	Yes; separate permit for operations	Permitted numerical concentrations; loading where applicable
NS	Yes	Yes	Required	Guidelines for I/I	Yes, includes operations	Permit required; site specific study required
NB	Yes	No	Required	Guidelines for I/I	Yes, separate permit for operations	License required; study if less than 8:1 dilution
QC	Yes	No	Required	No	Yes, no permit for operations	Permitted to site-specific conditions
ON	Yes	No	Required	No	Yes	Minimum plus site-specific requirements
MB	Yes	No	Required	I/I limits in license to upgrade sewers	Yes, includes operations	Avoidance response by biota; allocation factor
SK	Yes	No	Required	Same permit as for treatment	Yes, separate permit for operations	Minimum plus site-specific requirements
AB	Yes	No	Required	No	Yes, one permit for construction through to reclamation	Minimum plus site-specific requirements
BC	Yes	No	Municipal Sewage Regulation and Liquid Waste Mgmt Plan	Municipal Sewage Regulation and Liquid Waste Mgmt Plan	Municipal Sewage Regulation and Liquid Waste Mgmt Plan	Minimum plus site-specific requirements

Territorial Structure

Yukon is the only Territory currently with delegated authority for water management. Water Boards are in place for all Territories with authority in the Yukon resting with the Yukon Minister and authority in NWT and Nunavut resting with INAC. Water Boards issue permits for wastewater systems, including collection, treatment and release components. Effluent discharges are based on site-specific conditions and with northern requirements identified.

Municipal Structure

From our survey, many municipalities have sewer use bylaws. The exceptions are primarily small, residential (excluding the province of Newfoundland and Labrador, which does not delegate authority for sewer use control to municipalities). A wide range of materials, chemicals, and conditions for discharge are identified in the sewer use bylaws with corresponding objectives that range from narrow to broad. Sewer use bylaw objectives of municipalities include:

- Municipal staff and infrastructure protection
- System efficiency and use
- Prevent stormwater and ‘clear’ water from entering the system
- Protect sludge or biosolids quality
- Public and property protection
- Environment Protection.

There is variation in municipal sewer use bylaws that reflects the respective Provincial expectations and the decisions of municipal councils. Accordingly, there is no common view among municipalities of the municipal role in environmental protection and in particular the most effective municipal role and authority for source control of inputs to sewer systems.

Product and Pre-disposal

The federal government is the only government involved in product and pre-disposal controls of significance for municipal wastewater¹. Federal controls at this level occur primarily through *CEPA 1999*.

Influent

The federal government (through *CEPA 1999* and the *Fisheries Act*), some provincial governments and many municipal governments have regulatory or management measures controlling or managing influent sources to municipal wastewater systems. One Aboriginal community contacted also has an influent control bylaw although enforcement is a serious limitation in the effectiveness of this bylaw. The Yukon Territory and those provincial governments that do not have influent control regulations expect municipalities to develop sewer use bylaws.

Collection

All but one province (BC) issue permits for construction of sewer systems. Most provinces do not issue operational permits for collection systems. BC manages overflows through the Municipal Sewage Regulation as part of the Liquid Waste Management Plan process. Combined sewers are discouraged in all jurisdictions. Municipalities may identify specific collection controls in sewer use bylaws to limit groundwater, stormwater or other ‘clear’ water entering the sewer system.

¹ The province of Saskatchewan imposes an environmental surcharge on each can of motor oil sold to encourage reuse. This market measure is a management instrument for a product that would have some influence on municipal wastewater effluent quality control.

Treatment

The federal government has established treatment system performance objectives for certain toxic substances under *CEPA 1999*. To date, substances covered include ammonia, inorganic chloramines and chlorinated wastewater effluents (the later 2 substances are expressed as total residual chlorine). In most cases, the federal objectives under *CEPA 1999* instruments are more stringent for total residual chlorine and for ammonia concentrations than those specified through provincial permits². Provinces and Water Boards establish performance and/ or technology requirements for wastewater treatment. The mechanism for communicating these requirements is typically a permit to construct or operate, although BC has moved to performance-based requirements through the Municipal Sewage Regulation.

Release

The federal government has significant regulatory involvement with respect to release of water to the environment through the FA. The FA does not have a regulation defining acceptable releases for the municipal wastewater sector and so the broad restrictions on release of deleterious substances apply to wastewater releases. This is a significant issue for the sector since the FA provisions are not necessarily satisfied by conditions for effluent release as identified in the facility permit from the province or Water Board. Provinces and Yukon Territory implicitly or explicitly incorporate the concept of mixing zones (also called initial dilution areas) into their release policy and/or permits.

Monitoring and Reporting

Through *CEPA 1999*, the federal government requires reporting to the NPRI of releases by wastewater treatment facilities meeting the reporting threshold requirements. Monitoring may also be undertaken as part of *Fisheries Act* compliance inspections. Provinces and Water Boards undertake compliance monitoring, however the municipalities are typically the most significant source of information through reports to the provincial or Board level. Municipalities may or may not monitor for bylaw compliance, depending on resources available and the provisions or complexity of their bylaws.

Gaps, Overlaps and Opportunities

Table ES.2 illustrates a simplified representation of the legislation and controls at jurisdictional levels. Using the model wastewater system as a basis for analysis, there are regulatory controls in place by at least one level of government for all components of the system.

Table ES.2. Simplified Representation of Controls at Jurisdictional Levels

Area of Regulation	Product/Pre-disposal controls	Source Controls for Municipal Systems	Collection System Construction Controls	Treatment Controls	Release
Typical characteristics of Requirements	Pollution Prevention	Pollution Prevention or Performance Based	Performance Based or Technology Based	Performance Based or Technology Based	Performance Based
Federal Legislation (National role)	CEPA	CEPA and FA		CEPA	FA
BC			Regulation (MSR) and LWMP	Regulation (MSR) and LWMP	Regulation (MSR) and LWMP
AB			Permits	Permits	Permits

² Duplication Analysis Report, 2004

Area of Regulation	Product/Pre-disposal controls	Source Controls for Municipal Systems	Collection System Construction Controls	Treatment Controls	Release
SK			Permits	Permits	Permits
MB			Permits	Permits	Permits
ON			Permits	Permits	Permits
QC			Permits	Permits	Permits
NB			Permits	Permits	Permits
NS		Regulated limits as back-stop	Permits	Permits	Permits
PE		Regulated limits as back-stop	Permits	Permits	Permits
NL		Regulated limits and Industrial Permits	Permits	Permits	Permits
Yukon Territory (through Water Board)			Permits	Permits	Permits
Municipal Legislation		Bylaws (wide variance)	(minor)		

Product Level Controls

No overlaps of the federal government with other jurisdictions exist in the area of product level controls. Gaps in the control of certain substances appropriate for CEPA 1999 controls in products are likely. An opportunity exists to identify criteria and a process to determine the most suitable and effective level of government to undertake control of a substance, a process that does not currently appear to be in place on a formal basis.

Influent Controls

Influent controls are addressed to some degree by all levels of government when examined on a national scale (although practices in individual provinces/ territories differ). There are potential gaps in influent controls in areas of the country where provincial/ territorial regulations or programs and municipal bylaws do not establish discharge limits or establish adequate discharge practices for dischargers of potential concern.

Collection System

Construction of municipal collection systems is subject to regulatory control at the provincial and Water Board level. There are gaps in coverage for the operation of collection systems in some jurisdictions. There is no permitting or licensing process for construction or operation of federal collection facilities and thus a gap exists for this Federal House function.

Where collection system design and/ or construction involve federal land, require federal approvals or permits, have federal funding or are initiated by the federal government, requirements of the *Canadian Environmental Assessment Act* (CEAA) must be met. The CEAA requirements may or may not be met through harmonized environmental assessment requirements for studies and recommendations at the provincial/ territorial level.

Treatment Controls

Provincial and Water Board requirements may include CEPA toxics, although the specific requirements (i.e. limits specified in permits) do not duplicate the federal requirements in many instances. From the perspective of municipal practitioners this is perceived to be an area of overlap. There are gaps in some jurisdictions with respect to permits or licenses for wastewater facilities operations. There is no permitting or licensing process for construction or operation of federal wastewater treatment facilities and thus a gap exists for this Federal House function.

There are varying requirements for operator training and certification in provinces and territories for the operation and maintenance of wastewater systems.

Release

The federal government also regulates releases to the environment through the *Fisheries Act* and also manages substances identified as toxic under *CEPA 1999*. Provincial governments and Water Boards control releases through permits or guidelines for release. Again, from the perspective of municipal practitioners, this is perceived to be an area of overlap. The *Fisheries Act* does overlap with the provincial/ Water Board permitting structures. Some jurisdictions have made initial efforts to harmonize these requirements by specifying no acute lethality of the effluent in laboratory bioassay tests. These requirements are not implemented in all facilities in any jurisdiction.

Other Potential Gaps and Opportunities

Three additional potential gaps and one additional opportunity were also identified by contacts in the study:

- The absence of adequate watershed level information to plan and understand the implications of current and future allocations for water uses and assimilation capacity for discharges is a significant gap.
- There is no clear process to identify emerging issues (such as pharmaceuticals and endocrine disruptors for example) or to incorporate them into technologies and practices of wastewater treatment facilities if they eventually are determined to be toxic under *CEPA 1999*. This gap also presents an opportunity to identify the role of *CEPA 1999* in identifying potentially toxic substances present in municipal wastewater and an opportunity to develop a process to adjust permits or standards for wastewater treatment plants as emerging substances of concern become resolved.
- Some municipalities are operating on their own initiative to exceed the provincial license effluent requirements. These actions may indicate the perception of a gap between permitted discharges and the requirements to adequately protect the receiving environment.
- Opportunities exist to examine existing harmonization agreements for successes and to adopt similar principles or approaches where suitable.

- Finally, an opportunity exists to develop or update provincial model sewer use bylaws or to perhaps develop two or three national model bylaws on the basis of population and level of industrial development.

Table ES.3 below summarizes the gaps, overlaps and opportunities discussed above.

Table ES.3. Summary of Gaps, Overlaps, Opportunities Identified

Areas of Regulation	Product/ Pre-disposal controls	Influent Controls	Collection System Controls	Treatment Controls	Release	Other
Gap	Likely	Potential gaps in coverage of ICI discharges and/ or substances coverage	Operations permits; Federal House construction and operations permits	Federal House construction and operations permits	Possible gap in level of protection from permit and that needed for environmental protection	<ul style="list-style-type: none"> • Watershed level decision-making • Emerging issues of concern
Overlap (Note overlap is not necessarily duplication or negative)		Possible for <i>Fisheries Act</i> and some municipal sewer use bylaws		CEPA toxics and associate performance requirements (2 substances to date)	Mixing zones in facility permits overlap and are inconsistent with the <i>Fisheries Act</i>	
Opportunity	Criteria and process to determine the most suitable/ effective level to control a substance (i.e. product or influent source control level)	Develop model sewer use bylaws (National? Provincial/ Water Boards?)		Harmonization of CEPA requirements with facility permits (examine existing examples of regulatory harmonization)	Harmonization of <i>Fisheries Act</i> and <i>CEPA 1999</i> with facility permits (examine existing examples of regulatory harmonization)	<ul style="list-style-type: none"> • Identify role of CEPA in identifying potentially toxic substances and establish a process to adjust permits/ standards