



Backgrounder on Sewage Treatment Plants and the *Toxics Reduction Act*

Ontario Sewage Treatment Plant Releases

As the charts below show, Ontario sewage treatment plants (STPs) are a major source of toxic metals such as mercury, lead, and arsenic. In fact, as outlined in Table 2, Ontario STPs are responsible for approximately 88% of mercury, 71% of lead, 37% of arsenic and nearly all chlorine releases into the province's water. The top 10 Ontario STPs released a total of 38,689,667 kg of NPRI pollutants (including nitrogen and phosphorus) into water in 2006.

According to the 2004 report of the Environmental Commissioner of Ontario, "The environmental need to control toxic substances discharged to sewers has been thoroughly documented."

Table 1: Ontario STP Releases of Toxics as reported to the National Pollutant Release Inventory (2006)

	Total On and Off-Site Releases*, Kg	Water Releases, Kg
Mercury and its compounds	236	90
Arsenic and its compounds	1,816	1,397
Lead and its compounds	14,415	5,747
Chlorine	242,528	164,457
Nonylphenol and its ethoxylates	35,594	35,594
Copper and its compounds	96,902	10,117
Zinc and its compounds	114,283	46,632
Cadmium and its compounds	1,056	643

SOURCE: www.PollutionWatch.org

*These amounts include pollutants released on-site (air, land, water) and those released or transferred off-site (but do not include amounts transferred to recycling).

Table 2: STP Water Releases as a Percentage of Total Ontario Water Releases of Selected Toxics as reported to the National Pollutant Release Inventory (2006)

	STP as % Of Total Water Releases
Mercury and its compounds	88.23%
Arsenic and its compounds	37.36%
Lead and its compounds	70.98%
Chlorine	99.61%
Nonylphenol and its ethoxylates	99.61%
Copper and its compounds	36.72%
Zinc and its compounds	39.58%

SOURCE: www.PollutionWatch.org

Table 3: Top 10 STPs in Ontario by Water Releases for all reported pollutants as reported to the National Pollutant Release Inventory (2006)

Facility	Location	Total water releases of all NPRI pollutants (kg)
Ashbridges Bay Treatment Plant	Toronto	13,679,710
Robert O. Pickard Environmental Centre	Ottawa	5,260,625
Highland Creek Treatment Plant	Toronto	4,765,634
Skyway Waste Water Treatment Plant	Burlington	3,878,724
Humber Treatment Plant	Toronto	2,636,142
Woodward Avenue Wastewater Treatment Plant	Hamilton	2,101,209
City of Guelph Wastewater Treatment Plant	Guelph	1,842,476
Lakeview Waste Water Treatment Plant	Mississauga	1,562,370
Barrie Water Pollution Control Centre	Barrie	1,517,578
Mid-Halton Wastewater Treatment Plant	Oakville	1,445,199
Total		38,689,667

SOURCE: www.PollutionWatch.org

Why Sewage Treatment Plants must be included in the *Toxics Reduction Act*

STPs are significant source of toxics

STPs are designed to treat human waste, not toxics such as metals. Despite this, they receive everything that is flushed down toilets or rinsed down the drains of household, commercial, industrial, and institutional establishments. In addition to human waste, sewage contains dirt particles, food fragments, oil and grease, soaps, detergents, bleaches, other cleaning agents, solvents, paint, pharmaceuticals, industrial wastes, and cosmetics. Stormwater, often carrying its own toxic chemicals, may also enter sewage plants if it uses the same sewers as sanitary sewage.

According to the Canadian Council of Ministers of the Environment (CCME), sewage plants discharge more than 3 trillion litres of treated effluent each year into Canada's surface water. In 2005, the CCME found that 69 of the 242 substances they examined in effluent were detected to occur at concentrations above benchmarks set for protection of human or ecological health. Substances of concern include:

- heavy metals such as lead, mercury, cadmium, and arsenic;
- organic compounds like polycyclic aromatic hydrocarbons and various pesticides;
- polybrominated diphenyl ethers and other brominated flame retardants; and
- emerging contaminants such as endocrine-disrupting compounds and pharmaceuticals.

Material known as sewage sludge or biosolids can remain after treatment. It is generally sent to landfill, incinerated, applied to farmers' fields, or sold. The U.S. Environmental Protection Agency collected sewage sludge from 74 randomly selected publicly owned treatment works in 35 states between 2006 and 2007. It reported that, for a total of 84 samples:

- 27 metals were found in virtually every sample, including arsenic, lead, and mercury;
- 5 polycyclic aromatic hydrocarbons and 10 polybrominated diphenyl ethers were found in virtually every sample; and
- 3 steroids (campesterol, cholestanol, and coprostanol) were found in all samples.

Create momentum for increased toxic control upstream

Often the best way for sewage treatment plants to reduce toxics outputs released into lakes and streams is better control of toxics inputs, that is, those toxics released into the sewers . The new *Toxics Reduction Act* would require a sewage plant to develop a toxic reduction plan, which could cover how the plants control toxic inputs into the sewer, optimize processes for toxic removal, and control toxics in sludge. Creating a toxic reduction plan would increase the pressure to control toxic inputs into the sewer, through the development of more stringent sewer control bylaws, better enforcement, increased toxic trackdown, and increased public awareness of proper disposal. It would increase the pressure on small and medium sized businesses who are not subject to the *Toxic Reduction Act* to reduce toxics released into the sewers. Once smaller and medium sized businesses focus their attention on what goes down their drains, they can, in most cases, find ways to reduce releases of toxics. For example, they may change manufacturing processes, reformulate products, or find ways to reuse wastes.

Creating a Green Economy

Often, industries have found that pollution prevention projects tend to pay back in a short time, through reduced energy use, lower supply or disposal costs, for example. Additionally, such projects can green existing industries and create green jobs for engineers, technicians, environmental scientists, construction workers, and many others.