



## STAFF REPORT INFORMATION ONLY

### Tracking and Reducing Chemicals in Toronto: Second Annual ChemTRAC Report

<b>Date:</b>	June 3, 2013
<b>To:</b>	Board of Health
<b>From:</b>	Medical Officer of Health
<b>Wards:</b>	All wards
<b>Reference Number:</b>	

#### SUMMARY

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ChemTRAC is a City program, led by Toronto Public Health (TPH), to reduce toxic chemicals in our environment and support a green local economy. The ChemTRAC program includes the Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423) that requires businesses to track and report the manufacture, process, use and release of 25 priority substances every year. This information can help businesses identify opportunities for greening and cost savings.

June 30, 2012 was the second ChemTRAC reporting deadline. The attached report presents the second annual dataset, which captures the reported use and release of priority substances from applicable industrial sectors in 2011. The data are also available in a searchable map and for download at [www.toronto.ca/chemtrac](http://www.toronto.ca/chemtrac). The report also highlights the pollution prevention activities of the ChemTRAC program and priorities for action.

Facilities reported approximately 70,000 tonnes of priority substances as manufactured, processed or used in 2011. Of the 70,000 tonnes, approximately 5,000 tonnes (or 8 percent) were released to the environment, mostly to air. The report identifies eight pollutants of the 25 priority substances to be of higher health concern because they were released in large amounts or ranked high because of toxicity. TPH is concerned about potential health effects from these substances in the short and long-term.

TPH offers support to facilities across Toronto to better understand their use and release of chemicals and provides information on opportunities to green their practices. As a guiding principle, priorities for action will focus on reducing health inequities. TPH will begin to work with facilities in neighbourhoods of Toronto where there are a higher proportion of people living on a low-income, who are at higher risk of poor health.

## **Financial Impact**

There is no financial impact from this report.

## **DECISION HISTORY**

On December 3, 2008, City Council adopted the Environmental Reporting, Disclosure and Innovation Program, which included the Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423).

<http://www.toronto.ca/legdocs/mmis/2008/cc/decisions/2008-12-01-cc27-dd.pdf>

The Medical Officer of Health submitted the first annual report on the data collected by the ChemTRAC program to the Board of Health at its June 25, 2012 meeting. The report highlighted the key findings of the data from the first reporting year under the Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423).

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.HL15.7>

## **ISSUE BACKGROUND**

In an urban environment like Toronto, the public's health may be affected by a number of environmental factors, including chemicals that pollute the air, water and land. Exposure to chemical sources can occur outdoors and indoors in homes and workplaces.

In 2008, TPH research identified 25 chemicals that are of concern for health in Toronto. The ChemTRAC program was developed to help better understand the institutional, commercial and industrial sources of these substances and encourage pollution prevention to protect health. The priority substances include solvents, metals and combustion by-products that can cause both short-term and long-term adverse health effects. Toronto residents are most commonly exposed to these substances through air emissions.

As part of the ChemTRAC program, facilities in Toronto are required to report their use and release of the 25 priority chemicals, if they meet reporting requirements through the Environmental Reporting and Disclosure Bylaw (Municipal Code Chapter 423). ChemTRAC reporting is being phased in over three years to allow time for all affected facilities, particularly small and medium-sized enterprises, to learn about the bylaw and their reporting requirements.

The first reporting deadline was in 2011 when Phase One sectors (see Table 1) and City-operated facilities provided data on their 2010 use and release of priority substances. Additional sectors were required to report their 2011 use and release by June 30, 2012 (see Phase Two sectors in Table 1). All other sectors are required to report for the first time in 2013.

Much of the data that ChemTRAC collects has not previously been available to the public. It adds important information on small and medium-sized sources to complement the data collected on large pollutant sources through Environment Canada's National Pollutant Release Inventory (NPRI) and Ontario's *Toxics Reduction Act*.

## COMMENTS

### Summary of 2011 Data

In 2012, Phase One and City-owned Facilities reported for the second time and Phase Two sectors reported for the first time. Some Phase Three sectors submitted information voluntarily. Increased awareness of the Bylaw resulted in more Phase One facilities providing data in 2012 as compared to 2011. Table 1 shows the number of facilities within each phase that reported information about their operations in 2011.

**Table 1: Number of facilities that reported on their operations in 2011**

Sector	Number of facilities that met reporting thresholds	Number of facilities that identified themselves as below thresholds	Number of facilities that identified themselves as exempt from reporting
<b>Phase One Facilities</b>			
Chemical and related products manufacturing	111	22	7
Food, beverage and tobacco products manufacturing	61	28	20
Power generation	5	1	2
Printing and publishing	78	80	21
Water and wastewater treatment	7	3	1
Wood products manufacturing	45	21	8
Other City facilities (not listed in Phase 1 & 2)	5	12	1
<b>Phase One Subtotal</b>	<b>312</b>	<b>167</b>	<b>60</b>
<b>Phase Two Facilities</b>			
Chemical Wholesale	6	1	1
Waste management and remediation	4	8	11
Medical and diagnostic laboratories	3	31	15
Dry cleaning and laundry services	94	48	18
Automotive repair and maintenance	113	99	103
Funeral services	8	20	4
<b>Phase Two Subtotal</b>	<b>228</b>	<b>207</b>	<b>172</b>
<b>Phase Three Facilities</b>			
	38	235	219
<b>Total</b>	<b>578</b>	<b>609</b>	<b>451</b>

The key findings from the 2011 data:

- 540 facilities reported a total of approximately 70,000 tonnes of priority substances as manufactured, processed or used. Of the total, about 8 percent (5,000 tonnes) were released to the environment, mostly to air.
- Of these facilities 85 percent did not report releases under the NPRI.
- For 9 priority substances – acetaldehyde, benzene, chloroform, dichloromethane, formaldehyde, manganese, nickel, tetrachloroethylene, and trichloroethylene – ChemTRAC is the only program that collects information on their releases in Toronto.
- As expected, the addition of Phase Two facilities resulted in a larger total amount of priority substances reported as released in 2011 than in 2010.
- The majority of facilities reporting information on their operations were found in non-residential areas.
- Similar to 2010 data, the substances reported in the highest amounts were volatile organic compounds, nitrogen oxides and fine particulate matter. These pollutants contribute to smog.
- For 2011, eight priority substances were identified as highest health concern based on highest release or toxicity ranked by toxic equivalency potential.
- Total reported data for Phase One facilities and City Operated facilities that reported in both 2010 and 2011 show that overall manufacturing, processing or use increased by 2 percent while overall releases decreased by 3 percent in 2011.

## Health impacts

TPH is concerned about potential health effects from the 25 priority substances in the short and long-term. The potential for health risk from a pollutant depends on how toxic a substance is and the amount of exposure a person has to the substance. Exposure is affected by factors such as how close a person is to a source of pollution, the length of time a person is exposed, and the concentration of the pollutant in the air. It is important to consider the impact a substance can have on health from both short-term exposures and exposure over a lifetime. The impacts of exposure to a mixture of pollutants, even if some are individually below levels of concern, also need to be assessed.

The toxicity of substances also varies. Some substances, such as lead and cadmium, are very toxic and could pose a risk even when released in small amounts. Other substances, for example volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>), have a low toxicity but the overall health risk may be high when they are released in large quantities.

To evaluate the relative potential health risks, TPH ranked the releases of the priority substances by their toxic equivalency potential or TEP. Toxic equivalency potentials provide a value based on the amount released and the toxicity of a substance. A high toxic equivalency potential value represents a higher potential to cause harm. The toxic equivalency potential scoring system ranks substances that cause cancer (carcinogens) and substances with other health impacts (non-carcinogens) separately.

When the data were ranked by toxic equivalency potentials scores, polycyclic aromatic hydrocarbons, cadmium, tetrachloroethylene, mercury and lead were identified as being of high concern even though they are released in small amounts.

The ChemTRAC data provide useful insights on the use and release of the 25 priority substances by facilities in Toronto. The toxic equivalency potential analysis provides insight into the relative potential health risks from these releases. However, ChemTRAC data does not provide information on all the sources of the 25 priority substances in Toronto. To fully characterize the health risks from priority substances in Toronto's environment, TPH will work with the City's Environment and Energy Office and partners to gather additional information on other sources through emissions data, findings from modelling studies<sup>1</sup> and air monitoring data.

### **Reducing health inequities**

Tracking and reporting on the use and release of priority substances is only the first step in encouraging facilities to reduce their releases of pollutants. The next step is identifying pollution prevention opportunities. TPH will collaborate with facilities and the community to identify opportunities and programs to support businesses in making reductions. The first priority will be to work with those facilities that release substances of greatest potential health risk in Toronto neighbourhoods that are most vulnerable to poor health.

People with lower socioeconomic status are more likely to have poor health because conditions like poverty, unemployment, social isolation and poor housing can contribute to stress, heart disease and other health effects.<sup>2</sup> Some research suggests that lower socioeconomic position predisposes people to greater susceptibility to health effects from air pollution because of already compromised health status.<sup>3</sup>

Using socio-economic status an indicator for poorer overall health, TPH will identify neighbourhoods that have a double burden. These neighbourhoods have both low socio-economic status and close proximity to facilities that release priority substances (see Figure 1).

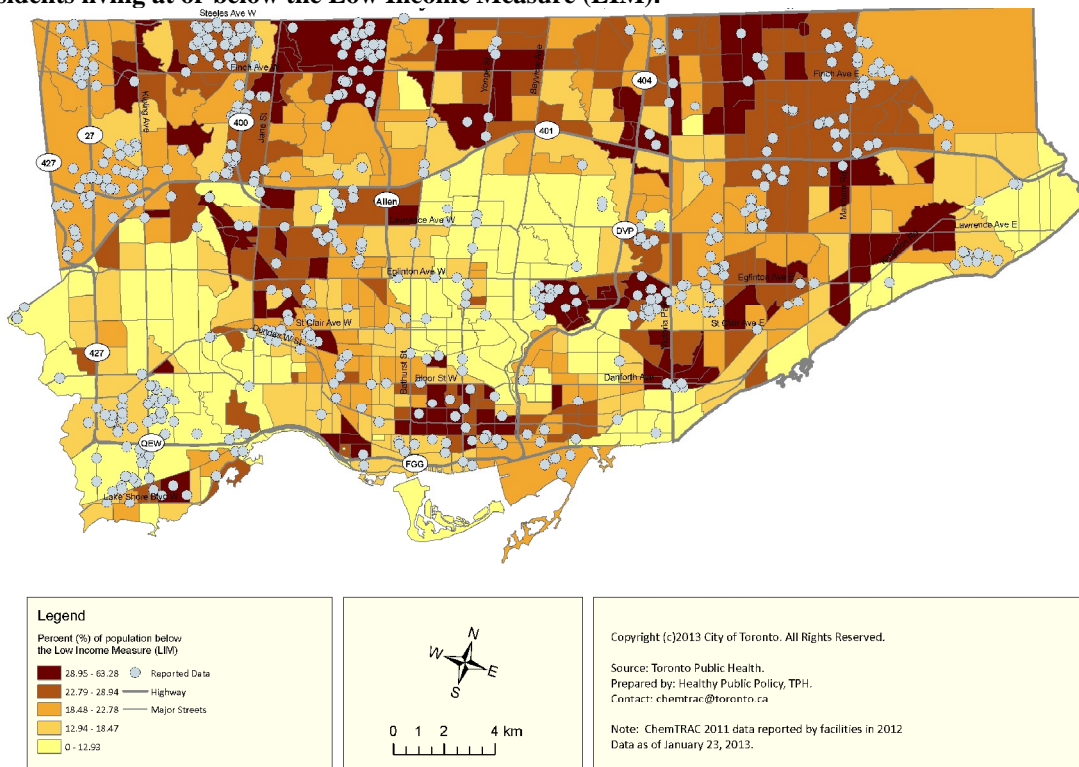
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<sup>1</sup> In 2012, the first local air quality study was completed for Wards 30 and 32. A second study, in South Etobicoke (Wards 5 and 6) is underway.

<sup>2</sup> Toronto Public Health (2008). *The Unequal City: Income and Health Inequalities in Toronto*.

<sup>3</sup> Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24.

**Figure 1: Distribution of facilities (all phases) that provided information on the manufacture, use or release of priority substances in 2011, and socioeconomic status (represented by proportion of residents living at or below the Low Income Measure (LIM)).<sup>4</sup>**



Currently, TPH offers support to facilities across Toronto to better understand their use and release of chemicals and identify opportunities to green their practices.

Working with partners, TPH will develop new targeted programs with facilities in vulnerable neighbourhoods. Lessons learned with facilities in the more vulnerable communities will be shared with facilities across Toronto. Partners include other government agencies, such as the Ontario Ministry of the Environment, Environment Canada and Partners in Project Green (Toronto Region Conservation). TPH also works with City Partners such Economic Development and Culture and the Environment and Energy Office.

### Community response to public disclosure

In 2012, ChemTRAC released the first dataset to the public on the online disclosure system. This system allows individuals to look up businesses in their neighbourhood and learn about their uses and releases of the priority substances.

<sup>4</sup> LIM is an income threshold. It is set at half of the median family income of Canada's population adjusted for family size. A person or family whose income falls below the LIM can be considered low income.

Since the release of the first ChemTRAC dataset community groups and individuals are making use of the data. There have been over 4,200 visits to the disclosure system site and over 1650 downloads of the entire dataset from OpenData.

The disclosure system and accompanying resources like the 2012 Annual report and a highlights brochure have been accessed by many groups like community health centres, children's groups, senior's centres, environment and health non-governmental organisations. Some groups have developed tools to work with the data and organize workshops to teach others about the program. Others have been testing the system and providing important feedback to the ChemTRAC program.

The public disclosure of the ChemTRAC dataset enables businesses to be transparent and accountable to the neighbourhoods in which they operate. It enables businesses to disclose their environmental releases in addition to their activities to improve their impact on the environment. Overtime the release of the data will also provide an opportunity to track progress in pollution prevention and reduced releases in Toronto.

## **CONTACT**

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## **SIGNATURE**

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## **ATTACHMENT**

Tracking and Reducing Chemicals in Toronto: ChemTRAC Annual Report – 2011  
Reporting Year