TORONTO

STAFF REPORT
ACTION REQUIRED

Strategy to Enhance Access to Environmental Information in Toronto

Date:	June 22, 2007
To:	Board of Health
From:	Medical Officer of Health
Wards:	All Wards
Reference Number:	

SUMMARY

Toronto Public Health (TPH) conducted research and consulted with City staff and external stakeholders on options to reduce health risks from pollution through enhanced reporting and access to environmental information (also known as "Community Right-to-Know").

TPH examined a variety of chemical substances that may be released from institutional, commercial and industrial operations in the city and identified 25 toxic substances of priority health concern. These substances occur in the Toronto environment at levels that pose a risk to health. They include carcinogens such as cadmium, trichloroethylene and formaldehyde. For Toronto residents, emissions to air are the most important route of exposure to these chemicals, and hence pose the greatest health risk. Toronto facilities also release greenhouse gases that contribute to climate change and associated health impacts.

Small- and medium-sized facilities are often not required to report information on their emissions because current reporting thresholds for mandatory national programs are high. Currently, only 3% of Toronto businesses report to the publicly-accessible National Pollutant Release Inventory (NPRI). It is estimated that more than 80 per cent of emissions to air for TPH's 25 priority substances are not reported to the NPRI.

Mandatory environmental reporting is an effective way to identify potential health hazards, stimulate pollution prevention, inform environmental policies and support green economic development. This report recommends that the Medical Officer of Health develop an environmental reporting program to require facilities to report the use and emissions of 25 substances of priority health concern, and report to the Board of Health in 2008 on a draft bylaw and implementation plan.

RECOMMENDATIONS

The Medical Officer of Health recommends that:

1. the Board of Health request the Medical Officer of Health, in consultation with the City Solicitor and key stakeholders including businesses and the community, to report in Spring 2008 on a proposed bylaw that:
   a) requires reporting to the City the use and emissions of specified substances of priority health concern;
   b) requires reporting for the following 25 toxic substances: acetaldehyde, acrolein, benzene, 1,3-butadiene, cadmium, carbon tetrachloride, chloroform, chloromethane, chromium, 1,4-dichlorobenzene, 1,2-dichloroethane, dichloromethane, ethylene dibromide, formaldehyde, lead, particulate matter (PM) 2.5, manganese, mercury, nickel, nitrogen oxides (NOx), polycyclic aromatic hydrocarbons (PAHs), tetrachloroethylene, toluene, trichloroethylene and vinyl chloride;
   c) identifies reporting thresholds for the specified toxic substances;
   d) identifies categories of facilities to which reporting requirements will apply;
   e) enables facilities to report data using an existing web-based mechanism, such as the system used to collect data for Environment Canada's National Pollutant Release Inventory (NPRI);
   f) makes reported information accessible to the public, except where access is limited under applicable laws such as the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA); and
   g) allows reporting facilities to provide specified contextual information with the data, such as pollution prevention activities.

2. the Board of Health request the Medical Officer of Health to report in Spring 2008 on the feasibility and usefulness of reporting on emissions of significant greenhouse gases;

3. the Board of Health request the Medical Officer of Health to report in Spring 2008 on costs, timelines, enforcement, data management, strategies to minimize administrative burden for reporting facilities, and other issues of bylaw implementation; and

4. the Board of Health request the Medical Officer of Health, in consultation with Economic Development, Culture and Tourism, to report in Spring 2008 on ways of supporting reporting facilities to adopt environmental best practices for pollution prevention.

Financial Impact

There are no financial impacts resulting directly from this report. Any financial impacts of the proposed bylaw will be identified in subsequent reports.

DECISION HISTORY

The Board of Health considered public access to information on chemical substances in Toronto at its January 17, 2005 meeting and recommended that the Medical Officer of Health consider practical and effective community right-to-know strategies, including regulation, that the city could implement.

At its June 19, 2006 meeting, the Board of Health reviewed preliminary findings of the Medical Officer of Health (MOH), which were presented in a report entitled "Access to Environmental Information: Preventing Pollution, Avoiding Risks." The report is available at http://www.toronto.ca/health/hphe/enviro_info.htm. The Board of Health requested that the MOH conduct further work, including a review of environmental information that is available in Toronto, a pilot project in a City facility, and consultation with City staff and external stakeholders on possible approaches to enhancing access to such information. A brief report on work underway was presented to the Board of Health at its September 14, 2006 meeting, which is available at http://www.toronto.ca/health/hphe/toxic_chemicals/toxicchemicals.htm.

At the April 23 and 24, 2007 meeting of City Council, a motion concerning locations in the City of Toronto that burn used motor oil for space heating was referred to the Medical Officer of Health for inclusion in this report.

ISSUE BACKGROUND

In an urban environment like Toronto, the public's health may be affected by a number of environmental factors, including chemicals that local industries and City operations use or emit to our air, land or water. There are approximately 11,000 businesses in Toronto that may be using or releasing chemicals to the environment.

Tracking information on the use and release of chemical substances from facilities has been shown to improve understanding of health hazards, stimulate businesses to prevent pollution and enable governments and the public to make better decisions to protect health and our environment. Examples of reporting programs in Canada include the mandatory NPRI, Toronto's Sewer Use Bylaw and industry's voluntary Responsible Care program.

Public access to data has been credited with increasing the success of reporting programs. The right of the public to access such information is often referred to as "community right-to-know." In Canada, access to environmental data tends to be limited. The NPRI is the most accessible of current reporting programs, as it makes information available via a searchable website and through printed reports. However, the reporting thresholds for the NPRI generally exclude smaller facilities, meaning that most Toronto facilities are not required to report their chemical emissions.

As a result, emissions information relevant to the City, businesses and residents of Toronto that is currently collected is neither complete nor easily accessible. The majority

of operations that may use or emit chemical substances are too small to meet current reporting requirements, or data that is collected is difficult to access.

In addition to toxic chemicals, Toronto facilities generate and release greenhouse gases that contribute to climate change. Health impacts of climate change include heat-related illness and mortality and increased burden of illness from air pollution. The City's "Climate Change and Clean Air Action Plan" proposes to reduce urban emissions of greenhouse gases by 6 per cent by 2012, 30 per cent by 2020 and 80 per cent by 2050, compared to 1990 levels. Current federal reporting thresholds for greenhouse gas emissions are so high that none of Toronto's facilities are required to report, making federal programs ineffective for tracking local progress.

Support has been building in Toronto for increasing the reporting of and access to environmental information. In 2001, City Council endorsed the Environmental Plan, entitled "Clean, Green and Healthy: A Plan for an Environmentally Sustainable Toronto". The Plan recommended that the City develop a Community Right-to-Know bylaw that empowers community members to know the location, sources and health effects of toxic chemicals in their community. A right-to-know strategy was also included in the 2002 "Action Plan for Cancer Prevention in the City of Toronto" developed by the Toronto Cancer Prevention Coalition, which was adopted by City Council that year. City Council has also identified transparency, accountability and public accessibility as core values in the public service and in the governance of this city.

In 2005, the community and the Board of Health supported further consideration of enhancing access to environmental information in Toronto.

COMMENTS

The Medical Officer of Health's June 2006 report, entitled "Access to Environmental Information: Preventing Pollution, Avoiding Risks," examined the current state of environmental data collection and public access to that information in Toronto, and the experiences of other jurisdictions with reporting programs. The report presented evidence that collecting use and emissions data stimulates pollution prevention policies that reduce the toxic chemicals being used and released into the environment. It concluded that, despite existing reporting regulations and voluntary programs, there is a significant lack of data on toxic chemical emissions from Toronto facilities.

This report presents the findings of further exploration of opportunities for enhancing access to environmental information and research on the specific toxic substances that Toronto facilities may be releasing into our air at levels that pose a concern for health.

TPH explored opportunities to enhance access to environmental information by examining the accessibility of information currently held by the City, conducting a pilot program at a City-operated facility, reviewing the experience of programs in Canada and the United States and consulting with the business community, government agencies,

labour unions and health and environmental organizations. The findings are summarized below.

Inventory of City-held Environmental Data and Public Access

TPH convened a working group of staff from thirteen divisions to identify what environmental data is currently collected by the City and the extent to which this information is accessible internally and/or publicly. The working group concluded that the City collects a large amount of information and makes most of it available on the Internet, although the information can be difficult for users to find. As a result of this work, the Toronto Environment Office and Web Services are currently revising the City's environmental "portal" to make it easier for staff and the public to use. The working group also assisted the Corporate Access and Privacy Initiative in making environmental information more routinely accessible.

Pilot Program in the City Print Shop

TPH coordinated a pilot project in a City-operated facility that demonstrated how, even for an operation with "green" programs underway, tracking environmental information can identify further pollution prevention opportunities. TPH partnered with the Toronto Environment Office and the City Clerk's Office, which operates the Printing and Distribution Unit (PDU) at 90 Niagara Street, to explore how environmental reporting could benefit a commercial or industrial facility and the surrounding community. The PDU had already undertaken numerous environmental initiatives, including pursuing Forestry Stewardship Council (FSC) certification.

A pollution prevention audit of the PDU identified additional opportunities to improve regulatory compliance, expand environmental programs and proactively communicate with the community. Staff also identified technical resources, such as Environment Canada's "Clean Print Canada" initiative, that could provide ongoing information on best practices for the printing sector.

Review of Environmental Reporting Programs in Other Jurisdictions

Environmental reporting programs have been shown to stimulate pollution prevention by providing valuable data to businesses, governments and the public. For details about implementing these programs, TPH reviewed information and interviewed government and business experts in Canada and the United States. The NPRI, Toronto's Sewer Use Bylaw, the Massachusetts Toxics Use Reduction Program and right-to-know bylaws in New York City and Eugene, Oregon were among the programs examined.

The experts consulted recommended mandatory programs as more cost-effective than voluntary approaches, and more successful in ensuring compliance and obtaining accurate data from facilities. Key to their success were strategies that minimized the burden for facilities through strong partnerships, the use of online reporting and tools to assist in reporting and pollution prevention planning. Lessons learned also suggested that

public education programs can help to build relationships between facilities and residents and make the information more understandable and useful to users. Experts also shared advice for effective program planning, which included the need to set goals, manage data effectively, and consult with affected stakeholders.

Stakeholder Consultations

TPH engaged business and community stakeholders and City staff through key informant interviews, focus groups and several multistakeholder meetings. Participants identified the following key themes to guide future action:

- Existing environmental information should be made more easily accessible and understandable.
- The City should identify priority chemical substances that may pose health risks and address those sectors that under-report.
- Collecting reliable data from a large number of businesses and sectors would be accomplished most effectively through regulation rather than a voluntary program.
- Any new program should avoid duplication with existing reporting programs, and include supports to help businesses comply.
- Information should be provided with context.
- Access to data could vary depending on the audience.

Stakeholders also identified some challenges and opportunities to consider in implementing any approach, and most expressed willingness to participate in future work.

Facilities Burning Used Motor Oil for Space Heating

As part of TPH's research into opportunities to make environmental information more accessible, City Council requested that the Medical Officer of Health identify facilities in Toronto that are burning used motor oil for space heating. Burning used motor oil takes place in facilities such as auto repair centres and dealerships that have provincially-issued Certificates of Approval. This activity is of concern because a space heater burning used motor oil could emit lead, arsenic, sulphur oxides and inhalable particulate matter.

Identifying facilities that are currently burning used waste oil is not easily done. Certificates of Approval, which are not easily accessible to the public, indicate that a facility has approval to burn oil but not whether this is actually occurring. An environmental reporting program may identify which facilities are burning oil by capturing data on some of the substances that would be emitted. However, TPH does not anticipate this to be a significant issue because the Minister of the Environment recently announced a ban on the burning of used oil for space heating.

Establishing Reporting Priorities

TPH staff worked with external consultants to characterize current reporting gaps and identify priorities for improved reporting. This work included the following activities:

- estimation of the total quantities of substances that are used and emitted to the environment in Toronto (to air, land and surface water);
- assessment of the comprehensiveness and accessibility of current reporting programs;
- identification of the size of the reporting gap (i.e. the difference between total estimated emissions and reported emissions); and
- identification of priority substances for improved reporting.

Detail on the methodology used in these activities can be found in the TPH report entitled "Process to Identify Priority Substances of Health Concern for Enhanced Environmental Reporting" available at http://www.toronto.ca/health/hphe/enviro_info.htm.

Characterizing Gaps in Current Environmental Reporting

The need to increase environmental reporting in Toronto was judged based on an assessment of whether current reporting of emissions captures the majority of substances released. Data that were readily accessible to the public were used to estimate the total emissions and the gaps in reporting of emissions of substances of concern.

Gaps in reporting were estimated by a consultant team led by Marshall Macklin Monaghan and Dr. Harvey Shear of the University of Toronto. Their analysis provides estimates of amounts of substances released (emitted), transferred and used, by substance and by sector. The gaps in reporting were estimated as the amounts released (by weight). No estimates were made of storage of substances because no databases or methods were available to provide estimates.

The key findings of the consultant's research are:

- Out of the possible 323 substances on the NPRI list, less than 100 substances are reported in Toronto.
- Only three per cent of Toronto facilities report to the NPRI.
- Most small and medium sized facilities do not report.
- The majority of Toronto's releases are to air (greater than 99 per cent for all sectors, except the waste management sector for which releases are greatest to water).
- Greenhouse gas emissions (eCO2) are not reported.
- Approximately 60 per cent of total releases in Toronto (to air, water and land) are not reported to the NPRI.
- Approximately 80 per cent of releases to air are not reported to the NPRI.
- No data are reported on the use and storage of substances in facilities.

Priority Substances for Reporting

Toxic substances are released by Toronto facilities in widely varying quantities ranging from a fraction of a tonne to over 5,000 tonnes per facility each year. These substances also vary in their toxicity. Some substances are so toxic that even the presence of very

small quantities can pose a significant health risk. Other substances have low toxicity, so that even when released in large quantities, the health risk is small.

Figure 1 illustrates the process used and the priority substances identified for enhanced reporting. Three approaches were used to identify priorities for reporting based on the potential health impact for Toronto residents:

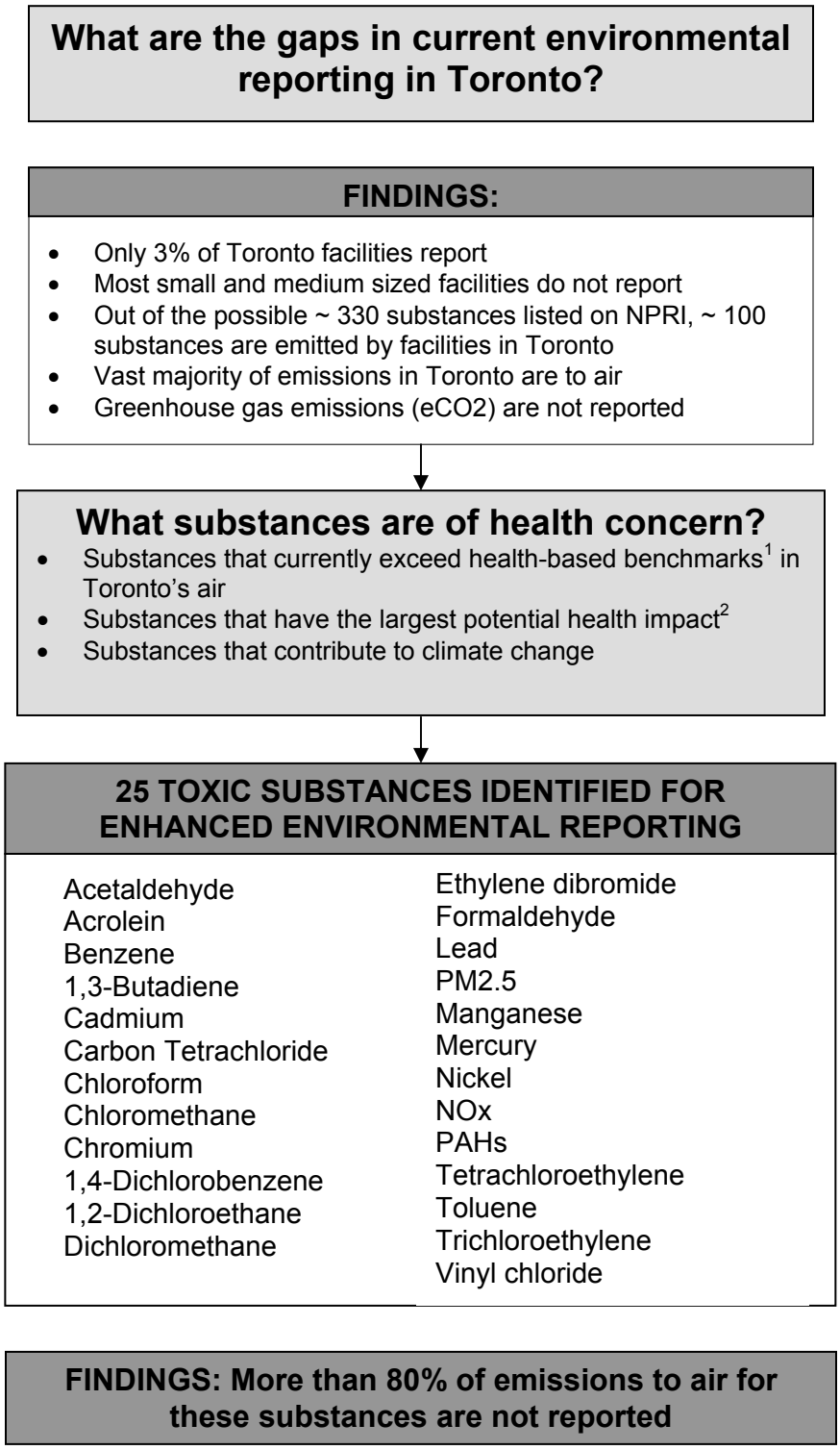
- **Prioritizing estimated emissions data using a health-based ranking scheme.** Using estimates of emissions, TPH applied a ranking scheme known as Toxicity Equivalence Potential (TEP). The method uses estimates of the amount of a substance released, the potential for human exposure, and the toxicity of the substance to calculate a relative risk score for each substance.
- **Identifying chemicals in Toronto's air that exceed health-based benchmarks.** Data on air quality was obtained from Environment Canada and the Ontario Ministry of the Environment. The air quality data were used to identify substances in Toronto's air at levels that may cause adverse health effects. This was determined by comparing levels measured in our air with reference levels from the California Environmental Protection Agency and the Ontario Ministry of the Environment.
- **Identifying common greenhouse gases that contribute to climate change.** The importance of climate change as a significant health issue of concern warrants consideration of the inclusion of carbon dioxide equivalents (eCO2) in the list of priorities.

Through this process the following 25 toxic substances were identified as being of priority concern for health: acetaldehyde, acrolein, benzene, 1,3-butadiene, cadmium, carbon tetrachloride, chloroform, chloromethane, chromium, 1,4-dichlorobenzene, 1,2-dichloroethane, dichloromethane, ethylene dibromide, formaldehyde, lead, PM 2.5, manganese, mercury, nickel, NOx, polycyclic aromatic hydrocarbons, tetrachloroethylene, toluene, trichloroethylene and vinyl chloride.

More than 80 per cent of emissions to air of these priority substances are not reported by Toronto facilities. These substances are of priority concern to residents, as well as workers at these facilities.

Greenhouse gases are not included in NPRI. The National Greenhouse Gas Registry tracks emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6); however, no facilities in Toronto are required to report to it. This is because the threshold for reporting is very high - 100,000 tonnes of eCO2. The primary greenhouse gases are CO_2, CH_4 and N_2O.

Figure 1: Establishing Priorities for Environmental Reporting



[1] From California EPA, Ontario MOE

[2] > 99% of total Toxic Equivalency Potentials (TEP), which are based on tonnage emitted, potential for exposure, and toxicity of each substance.

Recommended Policy Direction: A Mandatory Reporting Program

The work done to date supports the need for enhanced environmental reporting in Toronto. Existing reporting programs do not capture data from the vast majority of facilities that may be using or emitting substances of concern for health. To properly understand and address health risks in Toronto's urban environment, to stimulate environmental innovation and pollution prevention, and to inform our diverse population requires a reporting program tailored to the unique needs of our city.

TPH compared voluntary and mandatory reporting programs to determine the best option for Toronto. Evidence has shown that mandatory programs collect more complete and reliable data than voluntary programs, which is key to:

- providing a level playing field among reporting businesses;
- reducing costs to the City associated with data collection and management;
- evaluating data and assessing priorities; and
- gauging success in reducing health hazards and encouraging pollution prevention.

It is proposed that the City of Toronto develop a mandatory reporting program to collect data on the use and emission of 25 toxic substances of priority health concern, and to explore reporting of common greenhouse gases.

A conceptual framework for a bylaw is proposed based on research findings and the results of stakeholder consultation. The proposed approach would use a web-based reporting mechanism, such as that used to collect NPRI data, to collect information on the use or emissions of 25 priority substances above specific thresholds. Data collected would be used to identify and address health hazards for the priority toxic chemicals and to support businesses and the community to engage in pollution prevention measures.

TPH will engage City staff and external stakeholders in determining the specific elements and implementation plan for the bylaw, which will be presented to the Board of Health in spring 2008.

Key Principles to Guide Bylaw Development and Implementation

The proposed bylaw will incorporate the following key principles identified through research and stakeholder consultation:

- **Focus on substances of most concern to health** – the bylaw should track the use and emissions to air of the 25 substances of priority health concern, and should consider inclusion of common greenhouse gases in the reporting requirement;
- **Minimize burden to facilities that report –** the bylaw should aim to minimize administrative burden to facilities, particularly small and medium-sized operations, by setting reporting thresholds, providing assistance to estimate use and emissions, and using existing web-based mechanisms for reporting.

- **Support green economic development –** the bylaw should be implemented in a way that assists Toronto businesses to adopt environmental best practices for pollution prevention.
- **Provide public access to information** – data collected should be publicly accessible, except where limited by applicable legislation such as the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA).

How Reporting Can Reduce Use and Emissions of Chemicals

Experience in Canada and the United States show that regulations like the one proposed for Toronto can reduce and prevent the use and emission of toxic substances. Success is achieved because collecting data requires facilities to more closely examine processes and emissions and enables them to identify previously unrecognized opportunities for pollution prevention. Making data accessible provides information to government regulators, corporate shareholders and the public that can encourage environmental innovations.

Data can be used by the City to:

- Reduce or eliminate use and releases, improve regulatory compliance and adopt pollution prevention programs in its own facilities;
- Identify which substances or business sectors should be further prioritized for pollution prevention and/or health protection interventions;
- Help monitor progress towards greenhouse gas reduction targets;
- Monitor and acknowledge environmental progress in the business sector; and
- Contribute to regional and national partners' understanding of urban environmental and health priorities.

Data can be used by businesses to:

- Improve efficiency and safe use of chemical substances;
- Identify pollution prevention and product substitution opportunities;
- Decrease waste treatment costs, security risks, environmental liability and compliance requirements;
- Increase worker health and safety through substance reductions or substitution; and
- Communicate environmental information to shareholders, customers and the general public.

Data can be used by residents, workers and non-governmental organizations to:

- Identify and understand emissions and possible health hazards from specific facilities;
- Support emergency planning and preparedness;
- Enable meaningful dialogue with governments and facilities on emissions reductions; and
- Enhance workplace health and safety programs.

Canada's NPRI, the U.S. Toxics Release Inventory (TRI), Massachusetts' Toxics Use Reduction Act and New Jersey's Worker and Community Right-to-Know Act are examples of reporting programs that have motivated pollution prevention. The NPRI and TRI collect information from large industrial facilities and make them publicly available through reports and an Internet database. They have been credited with triggering substantial emission reductions and manufacturing innovations over the years.

In the U.S., TRI emissions have decreased by 46 per cent between 1988 and 1999. In Canada, the NPRI has been credited with lowering emissions by 27 per cent[1] since it began in 1993. Massachusetts' regulations enabled the state to meet its goal of reducing toxic by-product generation by 50 per cent in just 10 years[2]. In New Jersey, companies reporting use and emissions under its Pollution Prevention Act have reported that they found the planning requirements worthwhile in contributing to greater understanding of industrial processes, fulfilling regulatory requirements and providing a more complete cost-benefit framework with which to propose capital investment projects[3]. Regulators also reported that companies set greater substance reduction goals and considered more ways to amend processes than before the Act was passed[4].

Making data publicly available can further stimulate pollution prevention in several ways. Information can help government regulators better tailor their environmental priorities and work with companies to develop pollution prevention programs[5]. Companies' desire to improve their image to shareholders, regulators and the public also drives environmental improvement, often beyond that which might be stimulated without public disclosure[6].

In addition to protecting health, the environmental business innovation that is stimulated by reporting programs supports the goals of the City's Green Economic Development Strategy. The City has undertaken the development of a Green Economic Sector Development Strategy to support the growth and recognition of Toronto's environment and renewable energy industry sector, promote environmental best practices among employers and increase the City's competitiveness and retention of existing employment. This strategy is considered key to Toronto's future competitiveness and environmental health.

Facilities Most Likely to Report

The following sectors would likely be required to report because they use or release one or more of the substances of priority health concern:

- food and beverage manufacturing
- clothing manufacturing
- printing and publishing
- chemical manufacturing
- wood industries
- other manufacturing
- chemical distribution

- waste management
- medical and diagnostic laboratories
- automotive repair and maintenance
- fuelling services
- transportation support
- construction
- laundry services, including dry cleaning
- funeral services
- power generation
- property management / institutional

These sectors are classified under the North American Industry Classification System (NAICS), which is used by the NPRI reporting framework.

Information That Facilities Would Report

The proposed bylaw would require facilities to report annually on only those TPH priority substances that are used at the facility or emitted into the environment. The bylaw would include numerical thresholds for each substance, below which no reporting would be required. This would target emissions of most concern to health and reduce the burden on facilities that use or release very small amounts of priority substances. Some substances, such as nitrogen oxides (NOx), are by-products of manufacturing or other activities and therefore would only be reported as emissions.

It is important to collect data on both the use and the emission of a substance to fully assess potential health hazard and inform pollution prevention opportunities. Toronto's Sewer Use Bylaw and Massachusetts' Toxics Use Reduction Act are two regulations that collect usage data. This scrutiny of usage data is often credited with identifying opportunities for process efficiencies and pollution prevention that might otherwise go unrecognized by the facility.

TPH also proposes to encourage reporting facilities to provide contextual information along with their use and emission data, which would accompany any public access of the data. Stakeholders identified this as a key element to proactively reduce misinterpretation or misuse of the data.

Information provided to the City is subject to applicable privacy statutes such as MFIPPA. It will be accessible and protected in accordance with those statutes. Reporters to the NPRI can request that the government treat certain data as confidential based on any of the following reasons:

- the information constitutes a trade secret;
- the disclosure of the information would likely cause material financial loss to, or prejudice to the competitive position of, the person providing the information or on whose behalf it is provided; and

- the disclosure of the information would likely interfere with contractual or other negotiations being conducted by the person providing the information or on whose behalf it is provided.

In practice, very little of the data collected by the NPRI is deemed to be of a confidential nature – in the 1999 reporting year, only 6 of the 8,595 reports were deemed confidential[7].

Helping Facilities Collect Data

For smaller facilities, collecting data on chemical use and emissions may be a new experience. Toronto can make it easier for these facilities by:

- allowing them to estimate data through acceptable engineering procedures, such as those in use by Environment Canada for the NPRI, instead of calculating exact use and conducting expensive testing to measure actual emissions;
- providing forms and tools to help them estimate use and emissions;
- setting reporting thresholds to avoid reporting quantities of minimal concern;
- minimizing duplication by aligning new reporting with existing programs such as the NPRI or Sewer Use Bylaw; and
- reducing their reporting burdens in future years by providing information on environmental best practices for substituting or reducing substances they currently use or emit.

As with the NPRI, the City will consider ways for a facility to report based on actual measurements of its emissions, or use other accepted engineering methods that are less complex or costly. For example, a facility could estimate emissions via "mass balance" calculation, emission factors or engineering models. A mass balance approach is like an accounting sheet, which compares the annual "inputs" (purchases of a chemical) to various "outputs" such as in products, as waste or as emissions. Emission factors and engineering models predict expected emissions based on common activities or specific processes or equipment related to that substance. For example, a facility could enter the quantity of a particular chemical purchased over a year and what technology it uses, and use an emission factor or engineering model to calculate the estimated emissions.

Environment Canada provides reporting facilities with links to tools that can be used to estimate emissions. Many professional trade associations also provide emission tools to their member companies. Releases of priority substances that are by-products of operations, such as NOx and polycyclic aromatic hydrocarbons (PAHs), can be estimated with these modeling tools. For the Sewer Use Bylaw, the City provides downloadable forms on its website with which reporters can use a mass balance approach to enter annual inputs and outputs of a substance to estimate use and emissions.

Helping Facilities Report Data

TPH has held preliminary discussions with Environment Canada on streamlining reporting obligations. It is proposed that facilities subject to new or additional reporting as a result of the proposed Toronto bylaw would use the same web-based reporting program currently used by facilities reporting to the NPRI. OWNERS (One Window to National Environmental Reporting) is an on-line reporting mechanism used by Environment Canada, provincial and some municipal governments, and private sector organizations to collect environmental data from industry.

For Toronto's bylaw, using the OWNERS program would have several advantages:

- It is already configured to accept information on most of the 25 toxic substances of priority health concern. The system can be adjusted to accept information on greenhouse gases.
- It makes it easy for facilities to securely report their annual emission data, create reports and track trends over time.
- It contains the tools and engineering models to help reporters calculate their use and emission figures.
- It would collect the data and Environment Canada would send all collected data directly to Toronto, which lowers data management costs for the City. The Greater Vancouver Regional District currently uses OWNERS to collect data for its Air Quality Management Bylaw, and several federal and provincial programs collect information through this system.
- It would streamline reporting by allowing facilities to simultaneously report to other applicable programs. For example, facilities that meet requirements to report to both the NPRI and Ontario's Regulation 127/01 can currently submit information to both programs at the same time. New reporting requirements for Toronto could complement this system with minimal burden to companies.
- It can accommodate additional reporting programs, so Toronto could potentially add Sewer Use Bylaw reporting or other data tracking programs to this system, which would reduce administrative burdens for both reporters and the City.
- It can be configured to automatically send information to facilities on pollution prevention and less-hazardous alternatives. For facilities new to reporting, this could be a valuable resource to promote reductions in use and emissions.

TPH will continue to collaborate with Environment Canada, City staff and stakeholders to tailor a reporting approach that meets the objectives of the proposed bylaw.

Next Steps

TPH, in collaboration with the City Solicitor, proposes to develop a draft bylaw and an implementation plan, which will be reported to the Board of Health in spring 2008. Development of the draft bylaw will be undertaken in consultation with federal and City staff, and will address the following aspects:

- **Substance thresholds** – identification of use and emissions thresholds for the 25 priority toxic substances and common greenhouse gases to ensure an appropriate level of reporting, and by the most relevant sectors and facilities;
- **Reporting mechanism** – development of a web-based reporting system such as Environment Canada's OWNERS system;
- **Data management –** provision for appropriate processes and capacity within the City to manage data collected from facilities;
- **Supports for business –** consideration of incentives, sharing of information and technologies, sector-based training and other means to facilitate reporting and encourage the adoption of environmental best practices;
- **Providing access to data –** development of a system that provides data and contextual information to all users;
- **Enforcement –** identification of enforcement protocols for the bylaw;
- **Financial implications for City** – assessment of cost implications of start-up and full implementation of bylaw elements; and
- **Consultation with stakeholders and residents** – prior to the report to the Board of Health, TPH will invite the public, businesses and community organizations to provide feedback on key elements of a proposed bylaw. The feedback will inform the draft bylaw that is presented in Spring 2008.

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SIGNATURE

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