



STAFF REPORT ACTION REQUIRED

ChemTRAC Pollution Prevention Partnerships

Date:	May 9, 2016
To:	Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

SUMMARY

The goal of the ChemTRAC program is to protect public health by reducing toxic chemicals in our environment. The key feature of the program is the disclosure of information on the manufacture, use and release of priority substances to the public.

In 2015, 630 facilities provided data to ChemTRAC for operations during the 2014 calendar year. In total, approximately 82,000 tonnes of priority substances were reported as manufactured, processed or used in 2014. Of this amount, about 9 percent (7,000 tonnes) was released to the environment, mostly to air. The total annual releases reported in 2014 were 15 percent lower than those reported in 2012, the first year when the City received data from all sectors subject to the Environmental Reporting and Disclosure Bylaw.

While the decline observed in the total releases over the past years is encouraging, only 17 percent of the reporting facilities showed a sustained reduction in releases for the period of 2012 to 2014. This indicates that more can be done to ensure widespread implementation of pollution prevention measures.

A survey conducted in 2013 indicated that small and medium size businesses need assistance to identify and implement pollution prevention opportunities in their facilities. The business panel, as part of the ChemTRAC Pollution Prevention Pilot Project, identified that sector specific programs were the best approach to promote pollution prevention.

Toronto Public Health has identified five sectors that would benefit most from a City initiative: auto body painting and repair, dry cleaning, fabricated metal product manufacturing, food manufacturing and wood product manufacturing. To maximize

effectiveness, ChemTRAC will focus on one sector at a time, starting with the dry cleaning sector.

To encourage the sectors to take on pollution prevention initiatives, Toronto Public Health will be working with partners including various business associations, Toronto Water, Energy and Environment Division, Partners in Project Green, Toronto Atmospheric Fund, and the Ontario Ministry of Environment and Climate Change.

RECOMMENDATIONS

The Medical Officer of Health recommends that:

1. The Board of Health request the Medical Officer of Health to continue to explore opportunities for pollution prevention with the business associations and other stakeholders for the following sectors: auto body painting and repair, dry cleaning, fabricated metal product manufacturing, food manufacturing and wood product manufacturing;
2. The Board of Health request the Ontario Ministry of Environment and Climate Change to update the "Dry Cleaners Environmental Management Training Course" manual with the latest information available on water-based professional garment cleaning; and
3. The Board of Health request the Medical Officer of Health to collaborate with the Director, Purchasing and Materials Management Division to include water-based cleaning as an environmentally preferred service when the City tenders for professional garment cleaning services.

Financial Impact

This report has no financial impact beyond the currently approved budget.

DECISION HISTORY

At its June 30th, 2014 meeting, the Board of Health received the Third ChemTRAC annual report and requested that the Medical Officer of Health identify partnership opportunities with the Ministry of the Environment, relevant City divisions, the Toronto Atmospheric Fund and other organizations to encourage facilities that report to ChemTRAC, including City operated facilities and facilities that report to the Sewer Use Bylaw to reduce their releases of the eight substances of highest concern and report back to the Board. The substances identified were volatile organic compounds (VOCs), nitrogen oxides, particulate matter 2.5, polycyclic hydrocarbons, perchloroethylene (also known as perc), cadmium, lead and mercury.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.HL32.6>

ISSUE BACKGROUND

The goal of the ChemTRAC program is to protect public health by reducing toxic chemicals in our environment. The key feature of the program is the disclosure of

information to the public which is available through Open Data and the City's website at www.toronto.ca/chemtrac. ChemTRAC is one of the most frequently downloaded datasets from Open Data. ChemTRAC data was downloaded approximately 30,000 times in 2015 and the data disclosure system on the ChemTRAC website was viewed by over 35,000 unique visitors in 2015.

Environmental reporting and disclosure programs in other jurisdictions have encouraged facilities to reduce the amount of toxic substances they use and release into the environment. In 2015, 630 facilities provided data to ChemTRAC for the 2014 calendar year. In total, approximately 82,000 tonnes of priority substances were reported as manufactured, processed or used in 2014. Of this amount, about 9 percent (7,000 tonnes) was released to the environment, mostly to air. The total annual releases reported in 2014 were 15 percent lower than those reported in 2012, the first year when the City received data from all sectors subject to the Environmental Reporting and Disclosure Bylaw.

Several factors impact the total quantity of substances that are released in a given year. These include, changes in economic activity, estimation methods used and number of reporting facilities. While the decline observed in the total releases over the past years is encouraging, only 17 percent of the reporting facilities showed a sustained reduction in releases for the period of 2012 to 2014. This indicates that more can be done to ensure widespread implementation of pollution prevention measures.

This report was prepared in consultation with Environment and Energy Division, Purchasing and Materials and Management Division and Toronto Water.

COMMENTS

The experience of some facilities in Toronto highlights the potential that pollution prevention initiatives can have. For example:

- Installation of state of the art equipment in a crematorium reduced the total emissions of mercury from the funeral sector in Toronto by 25 percent between 2012 and 2014
- A chemical manufacturing company, being encouraged by ChemTRAC initiatives, reduced the release of volatile organic compounds (VOCs) from their facility by 23 percent. It also reduced water consumption by 1,500 litres an hour through a simple process modification.
- A food and beverage manufacturing company was able to reduce the release of VOCs by more than 50 percent by updating its processes.

A survey conducted in 2013 indicated that small and medium-sized businesses need assistance to identify and implement pollution prevention opportunities in their facilities. To provide guidance to businesses so that they can identify and implement measures to reduce the use of toxic substances or to substitute safer alternatives, Toronto Public Health (TPH) has developed resources such as green guides, e-learning modules, and case studies, which have been posted on the ChemTRAC website. Staff have also highlighted pollution prevention at meetings of various business associations and

promoted pollution prevention in a few business sectors through the ChemTRAC toxics reduction grants program and ChemTRAC business panel.

As part of the ChemTRAC Pollution Prevention Pilot Project, supported by the Toronto Atmospheric Fund, TPH in partnership with Economic Development and Culture Division established a business panel composed of five small businesses from across Toronto, and one City of Toronto facility. The businesses learned from each other's experience in overcoming barriers to pollution prevention. The panel identified that sector specific programs were the best approach to promote pollution prevention.

Identification of sectors to target

There are over 60 different sectors that report to ChemTRAC. To develop a sector specific pollution prevention program, TPH undertook a screening process to identify sectors that would most benefit from a City initiative. Sectors that released one or more of the eight substances of highest concern were identified and the following criteria applied:

- Sectors with a predominance of small facilities with few or no pollution prevention initiatives currently in place
- Sectors that have more than five facilities
- Sectors that meet the reporting thresholds and that release an environmentally significant amount
- Sectors comprised of large facilities were excluded since these facilities have the capacity to develop and implement pollution prevention initiatives and are required to develop pollution prevention plans under the provincial Toxics Reduction Act.

The following five sectors were identified where a ChemTRAC initiative would fill a gap and be most beneficial:

- Auto body painting and repair
- Dry cleaning
- Fabricated metal product manufacturing
- Food manufacturing
- Wood product manufacturing

There are two substances of priority concern released by these sectors. All five sectors release VOCs; the dry cleaning sector also uses and releases tetrachloroethylene. Sectors that contribute to the releases of other six substances of highest concern did not meet the above criteria.

Potential interventions

The pollution prevention programs are designed to address the common barriers that these sectors experience and highlight standard solutions that can easily be transferred to the operations of a facility. The common barriers and possible approaches to address them are illustrated in Table 1.

Table 1: Common barriers to pollution prevention and possible approaches to address them

Barrier	Proposed Approach
Motivation.	<ul style="list-style-type: none"> • document case studies • emphasize improved working conditions • provide financial support • provide Green Business Award/showcase <ul style="list-style-type: none"> – BlogTO.ca – Live Green Toronto – Industry meetings – Toronto Green Community
Knowledge	<ul style="list-style-type: none"> • provide educational assistance • document case studies demonstrating applicable capital costs and Return on Investment (ROI) • have demonstration facility willing to highlight benefits (business-to-business learning) • partner with industry associations
Financial Resources	<ul style="list-style-type: none"> • provide access to low interest loans / grants • document case studies demonstrating financial feasibility
Time/Human Resources	<ul style="list-style-type: none"> • provide technical assistance • have demonstration Facility
Market	<ul style="list-style-type: none"> • increase consumer awareness of environmental hazards <ul style="list-style-type: none"> – Videos – Social media – Green business awards – Environmental groups • networking events with machine and raw material suppliers

For each of the selected sectors there are viable pollution prevention opportunities that include changes in the equipment, process or chemicals used, for example:

- **Auto body painting and repair:** changing the type of paint and equipment used
- **Dry cleaning:** water-based cleaning is the environmentally preferred process
- **Fabricated metal product manufacturing:** chemical recovery and reuse; use of alternative solvents for cleaning parts; change in equipment used
- **Food manufacturing:** receiving and mixing ingredients in a closed system; increase in process energy efficiency
- **Wood product manufacturing:** recycling of solvents; change in type of glues, adhesives, stains and coatings used

Working in partnerships

Through the exploration of barriers and opportunities potential partners have been identified. They include various business associations, Toronto Water, Energy and Environment Division, Partners in Project Green, Toronto Atmospheric Fund, and the Ontario Ministry of Environment and Climate Change.

Implementation of each of the sector-specific programs will involve ChemTRAC staff meeting with the business associations and identifying pollution prevention champions. Staff will work with the champions and other partners to document case studies. To increase awareness of pollution prevention options, these case studies will be made available on the ChemTRAC web site and distributed in regular ChemTRAC communication. Staff will also encourage partners to present at trade shows, conferences, workshops and other relevant training events, including the establishment of demonstration sites.

City pollution prevention initiatives

The City has implemented various pollution prevention initiatives. For example, City Clerk's Information Production Unit has upgraded its printing process which has resulted in the reduction of use of chemicals, prevented the discharge of metals into the sewer, and has achieved a 90 percent diversion of waste from landfill. The Unit has also reduced its energy consumption by recovering heat from its printing process.

Through the implementation and enforcement of the Sewers By-law and Pollution Prevention Program, Toronto Water has noted a large decline in the concentration of priority substances in wastewater. Reductions have been observed in the wastewater discharge from the metal finishing sector, circuit board manufacturing and metal plating facilities.

Promoting pollution prevention in the dry cleaning sector

To maximise effectiveness, ChemTRAC will focus on one sector at a time starting with dry cleaning and followed by auto body painting and repair, food manufacturing, wood product manufacturing, and fabricated metal product manufacturing.

Dry cleaning has been selected as the initial sector because of the following factors:

- Of the five sectors, dry cleaning has the simplest process of operation
- Dry cleaning uses only one chemical (cleaning solvent)
- The dry cleaning sector alone is responsible for all the releases of tetrachloroethylene identified as one of the substances of most concern
- Dry cleaners tend to switch to other hydrocarbon solvents whereas the best alternative is water-based professional cleaning, which is now a viable option, and
- Chances have already been initiated in the sector

Tetrachloroethylene (perchloroethylene or perc) has been widely used as a dry cleaning solvent in Canada for more than sixty years. Perc is listed as a toxic substance under the Canadian Environmental Protection Act (CEPA). Environment and Climate Change Canada (ECCC) enforce the "Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations" under CEPA. Because of improper storage and disposal of perc, ECCC fined two dry cleaners in Toronto; one \$60,000 in 2013 and the other one \$15,000 in 2015.

The Massachusetts Toxics Use Reduction Institute has reviewed different solvents that are used in dry cleaning. The review indicates that water-based professional cleaning is the most economically viable and environmentally preferred method for garment care. It has the following advantages:

- It is based on a water-based process
- It does not create air or water pollution
- It uses less water, gas and electricity
- There is no off-gassing of residual solvents from clothes
- It is safer for workers, consumers and residents
- It is gentle on garments, helping them last longer
- It can be used to clean any “dry clean only” garment, including wool and silk
- The overall cost of cleaning clothes is competitive

Staff have held meetings to explore the best approach that would support a switch to wet cleaning with the following stakeholders: Ontario Fabricare Association (OFA), Korean Dry Cleaning Association, water-based professional cleaners, Toronto Water, Environment and Energy Division, Partners in Project Green, Toronto Environmental Alliance, Environmental Defence Canada, Toronto Atmospheric Fund, Ontario Ministry of Environment and Climate Change.

The meetings with the stakeholders helped identify the barriers to pollution prevention in this sector along with opportunities to promote the switch to water-based professional cleaning. Several cleaners who are willing to promote wet cleaning as the best alternative to perchloroethylene and other commonly used solvents have been identified as champions.

Many in the industry still believe that wet cleaning will damage clothes and is not economically viable. Demonstration workshops are an effective way for those who are not familiar with the technology to learn about how it works. The Ontario Fabricare Association has expressed interest in hosting demonstration workshops; however, funding for this will need to be mobilized.

Increasing market demand is one way to encourage the shift to more environmentally friendly products and services. Stronger recognition of wet cleaning as the environmentally preferred method for garment care among consumers, including accurate and verified claims, would support a shift in demand. The City could lead, through Purchasing and Materials Management Division, recognizing water-based cleaning as an environmentally preferred service in its Environmentally Responsible Procurement Policy or tender documents.

The Ontario Ministry of Environment and Climate Change (MOECC) requires training of drycleaners that use perchloroethylene or other solvents in their cleaning processes. However, the course materials need to be updated with the latest information available on water-based professional wet cleaning to better highlight this technology as an economically viable option.

Toronto Water is currently following up with businesses in the dry cleaning sector to ensure compliance with the Pollution Prevention Plan or Update submission requirements under the Sewers Bylaw. Targeted inspections in this sector will provide an opportunity to increase awareness of pollution prevention options available to this sector.

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