

# **Creating Ontario's Toxics Reduction Strategy**

**Discussion Paper**

**Ministry of the Environment**

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## Table of Contents

<b>1</b>	<b>Introduction</b> .....	<b>3</b>
<b>2</b>	<b>Get Involved</b> .....	<b>6</b>
<b>3</b>	<b>What has been done so far to reduce toxics in Ontario?</b> .....	<b>6</b>
<b>4</b>	<b>What is our proposal for a Toxics Reduction Strategy?</b> .....	<b>8</b>
<b>5</b>	<b>Legislation</b> .....	<b>9</b>
5.1	Overview of Toxics Reduction Legislation .....	9
5.2	New Requirements for Toxics.....	10
5.2.1	Materials Accounting .....	10
5.2.2	Toxics Reduction Plans .....	11
5.2.3	Reporting to the Ministry or a Designated Body .....	13
5.2.4	Public Disclosure .....	14
5.3	Scope of the Regulated Community .....	15
5.3.1	Designated Toxics .....	15
5.3.2	Which Toxics to Designate? .....	15
5.3.3	Proposed Phasing of Toxics .....	19
5.3.4	Thresholds.....	20
5.3.5	Sectors .....	21
5.4	New Authorities to Address Toxics in Consumer Products.....	22
5.5	Governance Model .....	23
5.5.1	Ministry of the Environment .....	23
5.5.2	Parties External to the Ministry .....	24
<b>6</b>	<b>Building Capacity and Support</b> .....	<b>25</b>
6.1	Technical Assistance .....	26
6.2	Partnerships and Linkages .....	26
6.3	Economic and Other Incentives.....	27
<b>7</b>	<b>Informing Ontarians</b> .....	<b>27</b>
<b>8</b>	<b>Additional Information</b> .....	<b>28</b>
8.1	The Opportunities and Challenges facing Ontario .....	28
8.2	Links to Health.....	29
8.3	Environmental Health in the Great Lakes Basin .....	30
8.4	Role of the Canadian Government and the Role of Municipalities .....	30
8.5	Chemicals Assessment and Management .....	31
8.6	Consumer Products.....	32
8.7	Role of the Provincial Government .....	32
8.8	Other Jurisdictions.....	32
<b>9</b>	<b>Appendix 1 – Sources for a List of Toxic Substances</b> .....	<b>34</b>
<b>10</b>	<b>Appendix 2 – Ontario’s Proposed Priority Toxic Substances</b> .....	<b>36</b>

## 1 Introduction

Toxic chemical substances in our air, land, water and consumer products can be a risk to our health and to the natural environment. Toxics have become increasingly common and we can be exposed to them through various aspects of our lives.

What are toxics? Toxics are chemical substances that are known or suspected, through laboratory and other studies, to have a harmful effect on human life or wildlife and the natural environment on which they depend.<sup>1</sup> Toxics are commonly thought of as complex industrial chemicals but they can also be naturally occurring substances such as ammonia or metals. The Government of Canada's glossary on chemical substances defines chemical substances as deliberately created, produced as a byproduct of other processes or occurring naturally in the environment and can be elements or compounds.<sup>2</sup> Adverse effects from toxics can result from short-term or long-term exposures and are influenced by a number of factors, including the dose and duration of the exposure as well as the sensitivity of the person, animal or plant exposed.

In Canada, over 23,000 chemicals and substances are in commercial use and hundreds of new substances are introduced into the Canadian marketplace every year. These substances are used in the manufacture of products that form parts of our daily lives, such as in cars, paper, textiles, toys, electronics, building materials, food and medicine. Use of these substances as the basic elements for nearly all industrial and productive activities results in their eventual release into the environment.

In Ontario, we have one of the largest and most diverse industrial and commercial sectors in North America. This makes Ontario a vibrant place to live and work. However, it also means that Ontario has unique challenges including dealing with some of the most significant releases of toxics and pollutants in Canada and North America, despite the pollution abatement efforts that have been made. For example, Ontario industries release the second largest amount of certain toxics in North America<sup>3</sup>.

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<sup>1</sup> Definition of "inherent toxicity" from the Government of Canada's glossary on chemical substances - [www.chemicalsubstanceschimiques.gc.ca/glossary-glossaire/index\\_e.html#i](http://www.chemicalsubstanceschimiques.gc.ca/glossary-glossaire/index_e.html#i)

<sup>2</sup>This discussion paper sometimes refers to toxics as substances, chemicals and/or chemical substances. Please note that any reference to a substance, chemical or chemical substance is meant to be consistent with the definition of "chemical substance" from the Government of Canada's glossary on chemical substances - [www.chemicalsubstanceschimiques.gc.ca/glossary-glossaire/index\\_e.html#c](http://www.chemicalsubstanceschimiques.gc.ca/glossary-glossaire/index_e.html#c)

<sup>3</sup> North American Commission on Environmental Cooperation, 2006. *Toxic Chemicals and Children's Health in North America*, p.25



There is growing scientific and public concern regarding the presence of chemicals in our environment and the health implications of long-term chemical exposure. Of particular concern is the exposure of individuals to chemicals during vulnerable life stages such as pregnancy and early childhood.

In response, the government has committed itself to introduce new legislation and to develop supporting strategies to ensure that we continue to make further progress in defining Ontario's unique opportunities to face the challenges posed by exposure to toxics.

We have an unprecedented opportunity in Ontario to turn challenges into benefits and economic prosperity. Ontario companies recognize that investments in improved environmental performance can also result in financial gain. Companies that reduce the use of and emissions of toxic substances can save money by improving efficiency, recovering and reusing toxic materials, improving their market position with greener products, protecting worker health and safety, reducing waste disposal costs, and lowering regulatory compliance costs.

Reducing toxics in Ontario's economy will not only benefit the environment, it will also create opportunities for developing new ways of doing business. This will open the door for newer and greener products demanded by consumers and the emergence of greener jobs in Ontario, as well as position Ontario to better compete in the international marketplace. For example, the European Union (EU)'s new REACH program will place strict controls on toxics imported in products, with the result that all direct and indirect exporters to the EU will likely make significant shifts to greener products.<sup>4</sup>

Other North American jurisdictions have seen successes in reducing toxics. For instance, between 1989 and 1998, the state of Massachusetts has been able to reduce its generation of toxic waste by 50 per cent through actions by industries required under its

#### Toxics Reduction Success Story

Husky Injection Molding Systems Ltd., with global headquarters in Bolton, Ontario, has more than 40 offices world-wide and has implemented a number of successful initiatives to reduce the environmental impacts of their operations, including:

- Installing highly efficient lighting, heating, cooling and insulation leading to a 30 per cent kilowatt per hour energy reduction in Canada since 2001.
- Implementing waste diversion programs. For example, its global headquarters in Bolton, Ontario has achieved a 94 per cent waste diversion rate and each year generates in excess of \$800,000 through recycling efforts.
- Instituting a proactive chemical management program, that has reduced the number of hazardous chemicals used by approximately 40 per cent.

Source: Husky Injection Molding Systems Ltd. website  
[www.husky.ca](http://www.husky.ca)

<sup>4</sup> Additional information on the REACH program can be found at:  
[ec.europa.eu/environment/chemicals/reach/preparing/index\\_en.htm](http://ec.europa.eu/environment/chemicals/reach/preparing/index_en.htm).



*Toxics Use Reduction Act.*<sup>5</sup> From an economic perspective, the state also noted a total of approximately \$14 million saved by industries between 1990 and 1997.<sup>6</sup> Elsewhere, a 1996 evaluation of the pollution prevention planning required under the state of New Jersey's *Pollution Prevention Act* of 1991 highlighted that facilities were able to save an average of \$116,000 per year.<sup>7</sup>

The time is right for Ontario to develop a comprehensive Toxics Reduction Strategy (Strategy) to address our challenges and support facilities to achieve toxic reductions and process innovations. These efforts would better protect the environment and our health, while stimulating innovation and moving us in the direction of a greener economy for Ontario.

The Ministry of the Environment (Ministry) is proposing a comprehensive Strategy that is intended to refocus our traditional "end of pipe" management of emissions. It would include a focus on pollution prevention, which includes reducing toxic "use" or inputs, changing processes and technologies, and taking other actions to help lessen the release of toxics into our environment. The Strategy would address the amount of toxic substances used by facilities as inputs, in processes and/or produced as products, byproducts or waste. Reductions in the use of toxics can reduce levels of exposure to substances in air, land, water and consumer products, reducing the associated risks to human health and the environment. Toxics reductions can also lead to additional environmental benefits such as improved energy and resource conservation and improved air and water quality.

Ontario can make sound progress in capitalizing on these opportunities if new strategies to reduce toxics are put in place. That is why Ontario proposes to develop the Strategy, underpinned by a new law to reduce toxic substances in the air, land, water and in consumer products. We are proposing to dedicate \$41 million over four years to support the development of the Strategy.

As a first step, the government wants to hear your views and opinions. Your ideas will help to ensure the adoption of an effective and workable Strategy suited to Ontario.

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<sup>5</sup> Toxics Use Reduction Act (TURA) Program Overview – Massachusetts Department of Environmental Protection - [www.mass.gov/dep/toxics/tura/turaover.htm](http://www.mass.gov/dep/toxics/tura/turaover.htm)

<sup>6</sup> Executive Summary, The Massachusetts Toxics Use Reduction Program, "Evaluating Progress: A Report on the Findings of the Massachusetts Toxics Use Reduction Program Evaluation", March 1997, p.v - [www.mass.gov/envir/ota/resources/pdf/1997\\_tura\\_program\\_evaluation.pdf](http://www.mass.gov/envir/ota/resources/pdf/1997_tura_program_evaluation.pdf)

<sup>7</sup> Natan, Thomas E. et al., Evaluation of the Effectiveness of Pollution Prevention Planning in NJ, A Program-Based Evaluation – May 1996 - [www.state.nj.us/dep/oppcc/reports/hamp1.htm](http://www.state.nj.us/dep/oppcc/reports/hamp1.htm)

## 2 Get Involved

Read this discussion paper to learn about key issues regarding toxics, the Strategy and the new legislation that is being proposed. Consider the questions put forward in this proposal and submit your comments through the Environmental Registry at [www.ebr.gov.on.ca](http://www.ebr.gov.on.ca) between August 27 and October 10, 2008. You can find out more at [www.ene.gov.on.ca/en/toxics/index.php](http://www.ene.gov.on.ca/en/toxics/index.php).

## 3 What has been done so far to reduce toxics in Ontario?

The Province recognizes the importance of reducing toxics and has made solid progress in doing this over the past few years. For example, earlier this year the government passed the *Cosmetic Pesticides Ban Act, 2008* which, by regulation, will ban the use of pesticides for cosmetic purposes.

In 2007, we set 19 new or updated air standards for 14 air toxics<sup>8</sup>, including lead. We have now updated a total of 59 air standards for toxics, the largest update in over 30 years and the first time that some pollutants have had standards set for them.

The Province set new province-wide regulatory requirements to protect children from exposure to elevated lead levels that may be present in the plumbing of older neighbourhoods, schools and day-care centres. In 2006, the *Clean Water Act, 2006* was passed setting out the most stringent drinking water source protection legislation in Canada. This Act protects drinking water at its source and helps ensure that the water from our taps is safe from toxic substances and pollutants. Ontario also regulates industrial discharges to water through nine regulations under the *Ontario Water Resources Act* known as the Municipal Industrial Strategy for Abatement (MISA). Additionally, the government has committed to invest funding to help clean up contaminated areas in the Great Lakes such as the remediation of Randle Reef in Hamilton Harbour.

In 2008, the Minister approved two new industry-funded waste diversion programs; Municipal Hazardous or Special Waste, Waste Electrical and Electronics Equipment. These programs will help to ensure that potentially toxic components, such as lead, mercury, and cadmium are kept out of landfills. You can learn more at: [www.stewardshipontario.ca/mhsw](http://www.stewardshipontario.ca/mhsw)  
[www.ontarioelectronicstewardship.ca](http://www.ontarioelectronicstewardship.ca).

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<sup>8</sup> The 14 air toxics for which new or updated air standards were set in 2007 are: Lead and Lead compounds; Cadmium and Cadmium compounds; Ethylene oxide; n-Butanol; Chlorine dioxide; Chloroethane; 1,1-Dichloroethane; Isobutanol; Methyl chloride; Phosphoric Acid; Propylene; Sulphuric Acid; Total Reduced Sulphur (TRS) and Compounds; and Trimethylbenzene (TMB) isomers.



The Ministry also manages the Environmental Leaders Program, an initiative under which incentives such as public recognition and faster processing of Certificates of Approval are provided to environmental leaders who commit to going beyond compliance with environmental performance. Additional information on the Environmental Leaders Program can be found at: [www.ene.gov.on.ca/envision/general/leadership/index.htm](http://www.ene.gov.on.ca/envision/general/leadership/index.htm).

Additionally, the Ministry participates in bilateral agreements such as the Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem (COA) which is a federal-provincial agreement aimed at enhancing and protecting the Great Lakes. Through COA, Ontario is encouraging the Government of Canada to renew the Great Lakes Water Quality Agreement to further reduce the toxic pollution entering the Great Lakes on the American side of the border. More information on COA can be found at: [www.ene.gov.on.ca/en/water/greatlakes/coa/index.php](http://www.ene.gov.on.ca/en/water/greatlakes/coa/index.php).

In January of 2008, to support the development of the Strategy, the government established the Toxics Reduction Scientific Expert Panel (Expert Panel) to provide advice on which toxics should be the focus of immediate attention, action and reductions as the proposed new toxic reduction legislation is developed. The Expert Panel also provided its advice on various aspects of the proposed Strategy, including the proposed list of toxics included in this document. Throughout the remainder of 2008, the Expert Panel will continue to consider the proposed Strategy and provide advice to the Minister of the Environment.

You can learn more about the members of the Expert Panel, as well as the government's commitment to reducing toxics on the Ministry's website at [www.ene.gov.on.ca/en/toxics/index.php](http://www.ene.gov.on.ca/en/toxics/index.php).

The Ministry also recognizes the good work that has already been done by Ontario industries to reduce toxics in our environment. Ontario industries have reduced or properly manage toxics in two ways. One is through compliance with existing regulations and standards, voluntary pollution-prevention planning or environmental management systems. The other is through industry-led programs such as the Canadian Chemical Producers' Association Responsible Care Program, which is a code of ethics for safe and environmentally sound management of chemicals.

These accomplishments represent significant progress of which Ontarians can be proud. However, more work is still needed to reduce toxics in the Province.

## **4 What is our proposal for a Toxics Reduction Strategy?**

Ontario proposes to develop and move forward with a Strategy based on government commitments to:

- Introduce new toxics reduction legislation that would reduce pollution and inform and protect Ontarians from toxic chemicals in the air, water, land, and consumer products;
- Work with Cancer Care Ontario and the Ontario Medical Association to identify, target and reduce the number of cancer-causing agents released into the environment; and
- Provide programs and technical assistance to replace and reduce toxic chemicals with other less polluting substances and introduce innovative technologies.

To meet these commitments, the Strategy proposes to build on a strong scientific foundation and will encompass three main elements:

- Legislation;
- Building Capacity and Support; and
- Informing Ontarians.

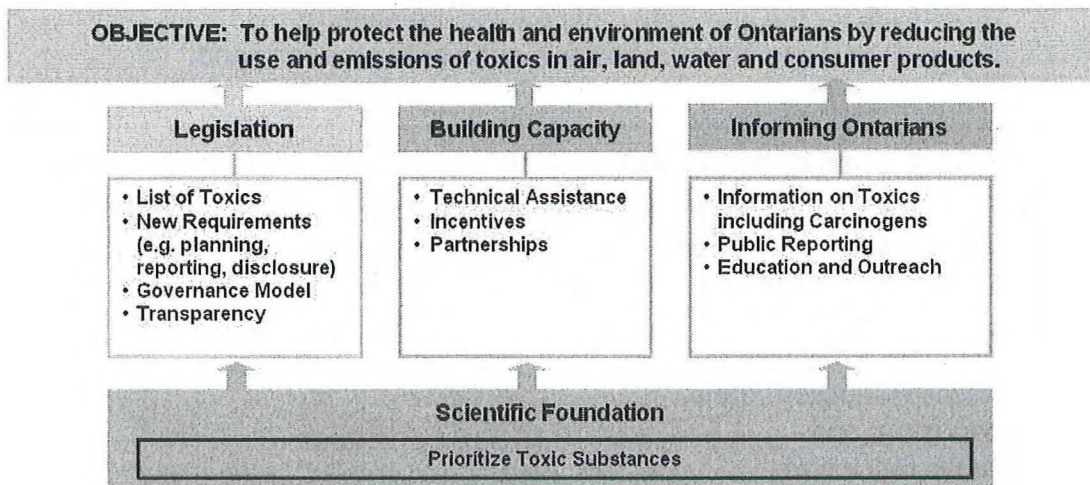
These proposed elements include new legislative requirements, and technical assistance and support to industry including the lowering of barriers to achieving reductions by building capacity through training, partnerships and other actions. The Strategy also proposes to make use of public transparency and reporting as a tool to motivate these reductions, and to keep Ontarians apprised of the progress being made to reduce toxics in the environment. Additionally, through outreach and partnerships with key partners like Cancer Care Ontario and the Ontario Medical Association, the Strategy would educate the public on toxics, including carcinogens, where and how they are being used and point out what members of the public can do to reduce their exposure to them. By informing Ontarians, the Strategy would enable the public to reduce health risks and stimulate industry compliance with the new toxics reduction requirements.

Overall, the objective of the proposed Strategy is to help protect the health of Ontarians and the environment by reducing the use and emissions of toxics in air, land, water and consumer products. Specifically, the Strategy will work to achieve three key goals:



1. Reduce toxics, including carcinogens, that are associated with risks to human health and the environment in Ontario;
2. Provide Ontarians with the necessary knowledge to make informed choices; and
3. Foster a "greening" of Ontario's economy.

**Figure 1: Proposed Toxics Reduction Strategy**



## 5 Legislation

The Ontario government proposes to introduce legislation to reduce toxic substances in the environment and in consumer products.

### 5.1 Overview of Toxics Reduction Legislation

Over the years, the Ministry has developed a significant legislative and regulatory framework to address emissions into the air, land and water. Ontario is proposing to augment its traditional approach to addressing "end of pipe" toxic emissions by developing a Strategy that focuses on reducing or eliminating toxics at the very beginning of the cycle. Facilities would still be required to meet all existing environmental requirements for emissions but there would also be new requirements based on the *use* of toxics.

Focusing on toxics use is designed to reduce toxics before they create problems for the environment, the public, industry and others as emissions, hazardous waste or exposure from consumer products at work and at home. The benefits of this approach include reducing risks to public health and contributing to safer and healthier workplaces, saving money for facilities by reducing their need to

purchase, store and dispose of toxics safely, and promoting cleaner, more innovative technologies and safer products. It would also result in enhanced understanding of the presence and movement of toxic substances throughout Ontario. This approach to toxics reduction has worked well in other jurisdictions such as the state of Massachusetts.

The government is proposing that new toxics reduction legislation would have the following key elements, some of which would likely be included through regulation:

1. New requirements for toxics;
2. Designated lists of toxic substances;
3. Thresholds for the application of new requirements;
4. New authorities to address toxics in consumer products; and
5. Governance model.

## **5.2 New Requirements for Toxics**

A main component of the new legislation would be the requirement for facilities in Ontario to report on their use and emissions of toxics and to develop Toxics Reduction Plans. The proposed new requirements include:

- Materials Accounting;
- Toxics Reduction Plans;
- Reporting; and
- Public Disclosure.

### **5.2.1 Materials Accounting**

As a first step, it is proposed that facilities would be required to undertake materials accounting. Materials accounting is a comprehensive method of tracking substances; it could be carried out by process engineers already employed at a facility, or by a professional technician, engineer or other consultant engaged by the company to undertake materials accounting activities. The legislation would require a facility to monitor, track and report on the total inputs and outputs of a designated toxic substance used at that facility. Inputs would include purchases or other amounts brought to the site as inputs for products and processes. Outputs include amounts of toxics produced at the site in products, byproducts, waste or releases into the environment.

Materials accounting serves as the basis for developing Toxics Reduction Plans (see 5.2.2). It is required in other jurisdictions such as in the states of New Jersey and Massachusetts where it is considered to be an important aspect of the process. That is because it sensitizes both staff and management to the amount of toxics being used, and identifies where safety can be improved, costly materials are being lost and where efficiencies can be made. In fact, an



evaluation of Massachusetts' program found that materials accounting was rated by state industries as its most valuable component of the program.<sup>9</sup>

Materials accounting is a tool for identifying the type and volume of toxics being used in a facility, and can help to identify where reductions or substitutions might improve the environment and safeguard human health, and where cost-savings might be found. The Ministry proposes that a facility's materials accounting information related to use, such as how much of a substance is manufactured, released, shipped as a byproduct/waste and/or used in a product, be made available to the public. The Ministry is also proposing that appropriate confidential business information provisions be established in the legislation to balance the disclosure of information against business needs. Please see 5.2.4 (Public Disclosure) for more information.

**Discussion Questions:**

1. *Does your operation currently undertake materials accounting? If not, why? Alternatively, if materials accounting is not undertaken, how does your operation measure its inputs and outputs?*
2. *How would materials accounting information assist in your understanding of how toxics are used in your community?*
3. *Do you have comments about materials accounting and how it should work?*

### **5.2.2 Toxics Reduction Plans**

The proposed Strategy would also include legislated requirements for facilities to develop a Toxics Reduction Plan, based on their materials accounting information. Each Plan would outline the use of processes, practices, materials, products or substances that use designated toxics, and would outline ways to avoid or reduce their use. Additionally, Plans may, at the discretion of the facility, include conservation measures, involving such elements as water or energy, and other alterations intended to improve the company's environmental performance.

It is proposed that Toxics Reduction Plans would include the following components:

- Analysis of current and planned processes that use, produce or release any of the substances on the designated list of toxics;
- Identification of methods to reduce the use, production and emission of toxic substances tailored to each facility's unique situation (e.g. input substitution, product reformulation, process/technology changes);

<sup>9</sup> Massachusetts Toxic Use Reduction Institute, "Survey Evaluation of the Massachusetts Toxics Use Reduction Program", Methods and Policy Report No. 14, 1997, p.18



- Identification of options for implementing the methods; and
- Proposed timelines for implementation.

It is proposed that the development of Toxics Reduction Plans be mandatory, *but that the implementation of the Plans be voluntary*. Facilities would be encouraged

to implement their Plans at a pace that reflects their capabilities and resources. Jurisdictional research indicates that voluntary implementation of Toxics Reduction Plans has been most effective at reducing toxics, and revealed that facilities are more willing to outline ambitious goals and actions under this approach. Facilities would also be required to update their plans over time. For example, in addition to regular updates, plans could also be updated as new toxic reduction options are developed, significant progress in reductions is made or other amendments are required.

It is important to note that the required components of Toxics Reduction Plans are not intended to duplicate or otherwise complicate the existing workplace health and safety provisions, such as occupational exposure limits to toxics, that facilities are required to follow under the *Occupational Health and Safety Act*. The Strategy will not duplicate these requirements, rather, depending on the way in which toxics are reduced at a facility, companies may benefit from reduced worker exposure to toxics and an improved ability to meet occupational exposure limits.

#### Toxics Reduction Success Story

Prokleen Washing Services, located in Oakville Ontario, participated in the Toronto Region Sustainability Program, which is a pollution prevention technical assistance program delivered by the Ontario Centre for Environmental Technology Advancement (OCETA). Prokleen is a 20-person tanker truck and bulk tank cleaning facility that is investigating and implementing a number of pollution prevention measures, including:

- Diversion and reuse of chemical bay heels, the use of an alternative cleanser, and installation of a solvent reuse sink. These improvements reduced 10 tonnes of chemical oil, 14 tonnes of asphalt, 5 tonnes of VOCs, and eliminated 5 tonnes per year of methylene chloride.
- Diversion and reuse of food bay heels reduced 138 tonnes per year of organic waste, which contributed to process waste, and yielded annual savings of \$82,000 with a payback of 1 month.
- Wastewater process changes which have yielded up to \$112,000 in annual savings.

The pollution prevention measures at Prokleen are projected to eliminate 5 tonnes per year of methylene chloride, 5 tonnes per year of VOCs, 30 tonnes per year of hazardous waste, 550 tonnes per year of process wastes, and decreased water consumption by 5000 tonnes per year with an overall payback of 5 months (\$198,000 annual savings).

General Manager John Corrigan stated that "... OCETA and Enviro-Stewards helped us identify and seize opportunities to go beyond environmental regulatory compliance through available technologies and process optimization. These internal changes now enhance our bottom line".

Source: OCETA website - Toronto Region Sustainability Program Case Studies  
[www.oceta.on.ca/TORSUS/ProkleenOakville.pdf](http://www.oceta.on.ca/TORSUS/ProkleenOakville.pdf)



Under the proposed Strategy, facilities would be required to update their plans over time. Other elements of the Strategy include the delivery of some technical assistance to help companies develop, implement and update their plans (see section 6 for more information). Reducing the burden of public reporting requirements, realizing opportunities for cost savings and better compliance with environmental standards, are additional reasons for facilities to implement their plans.

Under the proposed Strategy, facilities would be required to submit a summary of their plan to the Ministry or a designated body (see section 5.5) to ensure compliance with the legislation (see 5.2.3). Summaries would also be made available to the public. It is proposed that summaries would include information on the main components of the broader Plan, including the toxics reduction techniques that are being explored, as well as the expected change in the use of each toxic and the expected change in amount of toxics generated as byproducts or waste.

**Discussion Questions:**

4. *How are the proposed components of the Toxics Reduction Plans applicable to your operation?*
5. *What is an appropriate update schedule for Toxics Reduction Plans - annually, every two years, every five years, other?*
6. *Do you have comments on the contents of the Toxics Reduction Plan summaries?*

### **5.2.3 Reporting to the Ministry or a Designated Body**

Facilities would be required to report to the Ministry or a designated body (see section 5.5 – Governance Model). Reporting is proposed since it would enable the collection of information that would track trends in toxics use reductions. As well, reporting can also help facilities remain involved with toxics reduction activities and can assist in discovering what improvements have been made, what cost savings have been identified and/or any other actions pursuant to implementing Toxics Reduction Plans that were completed over a period of time. It is proposed that facilities be required to report the following information:

- Data required by the National Pollutant Release Inventory (NPRI)<sup>10</sup> for all substances on the designated list of toxics, including both substances that were reported to the NPRI and those that were not (see 5.3.1 - Designated Toxics - and its following sections for information on the list of toxics);

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<sup>10</sup> National Pollutant Release Inventory (NPRI) is Canada's primary source of data for facilities reporting on their emissions of toxic substances. The NPRI website is available at the following address: [www.ec.gc.ca/pdb/npri/npri\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm)



- Materials accounting information on each substance on the list of toxics used or produced in the reporting year;
- Any update to their Toxics Reduction Plan;
- Progress in implementing the toxic reduction options identified in their Plan; and
- Any quantifiable reductions in use, generation or emissions of substances on the designated list of toxics due to implementation of part of their Plan.

**Discussion Questions:**

7. Do you have any comments on the proposed reporting requirement?
8. Do you have any comments on the frequency of reporting - annual, every two years, every five years unless significant changes to plans are made, other?
9. Are these the right elements on which to report?
10. Are the proposed components of the report useful for determining where and how facilities in your community are working to reduce the use and release of toxic substances?

**5.2.4 Public Disclosure**

As part of the commitment to inform Ontarians, the Strategy proposes to include legislative requirements to make, at a minimum, Toxic Reduction Plan summaries, use data from Materials Accounting and Reports publicly available. The Ministry is currently exploring a number of methods to provide access to this information, such as a web-based portal. Please see Section 7 (Informing Ontarians) for more information.

It is proposed that only Toxic Reduction Plan summaries be made public rather than entire detailed plans. Not only is this approach taken in other leading jurisdictions, but it is also designed to strike a balance between upholding Ontarians' rights to be informed of pollution affecting their communities and protecting confidential business information such as trade secrets.

Additionally, the Ministry is considering various methods of tracking and monitoring the toxic reduction progress made by facilities across the province as a result of their toxic reduction planning and reporting. Part of this is developing sound performance metrics to measure progress and communicate results to the public. The development of these metrics are still ongoing and it is anticipated that the Ministry would consult with stakeholders on this subject.



**Discussion Questions:**

11. Do you have suggestions regarding the public disclosure of Toxics Reduction Plan summaries, use data from materials accounting and reports?
12. How will having access to this information better prepare you to make informed choices about toxics?
13. Do you have any suggestions on how the Province should protect confidential business information?

**5.3 Scope of the Regulated Community**

There are a number of key elements in determining the scope of the regulated community including the designated lists of substances, threshold levels and other factors. Taken together, these elements help determine which facilities would be subject to requirements under the legislation. The scope of the Strategy is determined by four variables:

1. a substance appearing on the designated list of toxics for Ontario is used;
2. the amount of the designated toxic substance used exceeds a specified threshold;
3. more than the designated minimum number of persons are employed; and
4. the facility belongs to a designated sector.

**5.3.1 Designated Toxics**

Developing a list of toxics plays an important role in the legislative framework of the proposed Strategy as it determines the number and type of substances targeted for action. It helps to define the regulated community, and informs Ontarians as to which chemicals are of concern in the province. Additionally, the list allows for the development and delivery of focused programs to support implementation.

Since toxics reporting and planning would be a new initiative for Ontario, it is important to keep in mind that the list would be considered to be a starting point. It is proposed that legislation would provide the authority to add or subtract substances over time as additional scientific research and consultation indicate the need for updating the list. Ultimately, the province is endeavouring to develop a "living list" that would be updated with additions, subtractions and other amendments over time to reflect new developments such as emerging science.

**5.3.2 Which Toxics to Designate?**

Ministry experts and the members of the Expert Panel have undertaken a review of emissions inventories as well as scientific reviews and priority lists in other jurisdictions to develop a list of designated toxics. From this review, Ontario



proposes to include approximately 475 toxic substances in a designated list, representing an initial inventory that the Strategy will work to address. This list is made up of chemicals reportable to the NPRI, the Great Lakes Regional Toxic Air Emissions Inventory, and Ontario's Regulation 127/01. Additional chemicals were added to the list based on concerns regarding reproductive toxicity or carcinogenicity. For more details regarding the source of information used in the development of the designated list, see Appendix 1.

Because many of the proposed chemicals are used differently, have varying degrees of potential health and environmental effects, and are either currently reported or not reported in Ontario through the NPRI, there must be varying and measured approaches to manage each substance properly. To accomplish this, the list has been divided up into four schedules that would guide how proposed chemicals would be dealt with by the Strategy.

The four schedules (see section below for more information on the schedules) separate out the chemicals that are currently known to be used and emitted in Ontario and reported to the NPRI from those that are less well known and not currently reported.

The data reported annually to the NPRI provides the most comprehensive information available on Ontario's industrial emissions, recycling and disposal of toxic substances and the facilities that use them. Because reporting mechanisms are already well established through NPRI, these substances would comprise the first two schedules and would be subject to the proposed new legislative requirements related to materials accounting, Toxics Reduction Plans and reporting. Schedule 1 (~45 substances) represents substances prioritized for immediate action and Schedule 2 (~275 substances) represents the remainder of NPRI substances for which regulatory requirements would be phased in over time (see 5.3.3 – Proposed Phasing of Toxics - for more information on phasing).

The non-NPRI substances are less well known, making it more difficult to assess their risks and the degree to which Ontario facilities may be using and emitting them. For this reason, the non-NPRI substances would be addressed through a number of different approaches. The Ministry proposes that a small number of non-NPRI toxics (~20 substances) will be subject to new reporting requirements to help gather the data required to assess exposure levels and the user community. These substances would comprise schedule 3. The remainder of the substances (~135 substances) would be examined by the Ministry over time in order to determine if select chemicals should be subject to new requirements. These substances would also be subject to voluntary reductions by facilities, supported by communication and education and outreach. These substances would comprise schedule 4.



## Schedule 1

The first schedule contains a draft list of approximately 45 chemicals that have been identified as *priority toxics*. These chemicals are currently reported by Ontario facilities to the NPRI and have been identified based on the volume of emissions to air and water, environmental toxicity and/or human toxicity, including carcinogenicity. Additional screening included consideration of issues identified in Ministry programs, as well as prioritization by other jurisdictions. Due to the consideration of both environmental and human health concerns, as well as volume of emissions, this schedule represents a diverse group of chemicals. Some of these chemicals are associated with industrial use while others are known only as byproducts of industrial processes and/or emissions. *Schedule 1 toxics would be subject to all legislative requirements in the first phase (i.e. materials accounting, reporting and reduction planning - please see below for information on phasing)*. Appendix 2 provides additional detail on the development of schedule 1, including a proposed list of what chemicals - divided between toxics and carcinogens - are to be included.

## Schedule 2

The second schedule includes all remaining NPRI substances, plus one additional substance, acetone.<sup>11</sup> *This would comprise a total of approximately 275 substances and would be subject to all the new legislative requirements in the second phase.* As explained above, the NPRI is proposed as the basis for this schedule for a number of reasons. The NPRI is the most comprehensive toxic substance emission reporting tool in Canada. It captures Ontario's high volume, high hazard industrial emitters. Ontario industry is familiar with the NPRI which would make for an easier initial implementation.

### Toxics Reduction Success Story

Teknion, a Toronto-based office furniture manufacturer with approximately 350 employees, has taken a leadership role in how it designs and manufactures its products, which has resulted in the reduction of toxics released into the environment. Some examples of their achievements include:

- GreenGuard certification for all of their major product lines – which means low emissions and improved indoor air quality.
- Using water-based adhesives, stains and powder-coated finishes to minimize the release of VOCs.
- A commitment as part of their Design for Environment Guidelines to eliminate the use of toxic materials, such as those by IARC – the International Agency for Research on Cancer.

As a member of Ontario's Environmental Leaders program, Teknion has also made significant public commitments to:

- Reduce electricity consumption by 10 per cent
- Reduce emissions from natural gas consumption by 10 per cent
- Increase diversion of waste by 20 per cent
- Reduce emissions of particulate matter

Source: Teknion Environmental Report, 2007  
([www.teknion.com/about-teknion/environment/pdfs/2007\\_report.pdf](http://www.teknion.com/about-teknion/environment/pdfs/2007_report.pdf))

<sup>11</sup> Airborne contaminant reporting under Ontario Regulation 127/01 (Airborne Contaminant Discharge Monitoring and Reporting Regulation) was largely harmonized with the NPRI reporting in 2008. However, Regulation 127/01 requires reporting on one substance not covered under the NPRI - acetone.



The NPRI is also similar to the U.S. Toxic Release Inventory (TRI) which is used by leading American states as part of their toxics reduction strategies.

### Schedule 3

The third schedule will include approximately 20 toxic non-NPRI chemicals of concern that were identified by the Expert Panel. As with the chemicals listed in schedule 4, little is known about their use in Ontario, but other jurisdictions have begun to examine and act on them. On the advice of the Expert Panel, these toxics were selected based on their assessment under the federal Domestic Substances List (DSL) categorization exercise and have been prioritized accordingly.<sup>12</sup> *Therefore, in order to gather critical new information on their use and emission, these substances would be subject to reporting requirements in phase 1.* Note that while these substances have been listed in this document for consultation purposes, both Ministry experts and the Expert Panel continue to perform analysis on this schedule and will work with the federal government to collect data on those chemicals that have been prioritized under the Chemicals Management Plan (CMP).<sup>13</sup> Appendix 2 provides additional detail on the development of schedule 3, including a proposed list of what chemicals are to be included. Additionally, please see 8.5 – Chemicals Assessment and Management - for supplementary information on the DSL and the CMP.

### Schedule 4

The fourth schedule includes approximately 135 toxic non-NPRI chemicals. These chemicals are classified as reproductive toxins, neurotoxins and mutagens, as well as carcinogens. These substances are not currently reported through the NPRI, which means that available data on their use and emission into Ontario's environment are limited. However, many of these chemicals are likely present in the Ontario environment, and based on the recommendation of the Expert Panel, the Province proposes to include them in the Toxics Reduction Strategy. *This list is not proposed to be subject to legislative requirements at this time. However, the Ministry proposes to examine the substances in this schedule and would consider whether any action should be taken to address them over time. For example, some substances may move to a different schedule based on emerging science. Additionally, this schedule would also be targeted for voluntary reduction approaches by facilities, supported through communication and education and outreach.* Review and consideration of these substances will likely form the content of subsequent consultations with stakeholders.

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<sup>12</sup> Domestic Substances List Categorization and Screening Program - [www.ec.gc.ca/substances/ese/eng/dsl/dslprog.cfm](http://www.ec.gc.ca/substances/ese/eng/dsl/dslprog.cfm)

<sup>13</sup> Chemicals Management Plan - [www.chemicalsubstanceschimiques.gc.ca/plan/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/plan/index_e.html)



### 5.3.3 Proposed Phasing of Toxics

The table below (Table 1 – Proposed Phasing) illustrates Ontario's proposed timetable to phase toxics in to the scope of the legislation.

Phase 1 would include:

- application of full legislative requirements on facilities using toxics contained within schedule 1; and
- requirements for facilities to report on their use of toxics in schedule 3.

Phase 2 would include:

- application of full legislative requirements to facilities using toxics in schedule 2;
- introducing schedule 4 for voluntary reductions over time; and
- ongoing review of schedule 4 toxics by the Minister to determine whether any substances should be moved to another schedule.

The Ministry is proposing a timetable to provide information on when the phases of the Strategy would be implemented. The proposal is for Phase 1 to begin in January of 2010 and flow into 2012. This time period for the first phase is proposed for a number of reasons, including: allowing facilities to familiarize themselves with the new legislative requirements and to determine the best course of action in developing options to reduce their use of toxic substances; allowing for any necessary supporting regulations to be developed; and to attempt to align with existing NPRI reporting requirements to reduce potential burdens on facilities. As an example, Phase 1 could be implemented in the following way:

- January 1, 2010 – Facilities using schedule 1 toxics start tracking materials subject to the new reporting requirements.
- December 31, 2010 - Facilities complete materials accounting.
- June 2011 – First Report Due (materials tracking and materials accounting) to align with NPRI reporting.
- January 2012 – First Toxics Reduction Plans due.

It is anticipated that Phase 2 would begin in 2012. However, please note that both the phasing and the proposed timing associated with it are the subject of consultation.

**Table 1 – Proposed Phasing**

Phase	Toxics	Requirements
<b>Phase 1</b> ○ Materials Accounting 2010 ○ Reporting 2011 ○ Planning 2012	○ ~45 Priority NPRI Toxics (schedule 1)	○ Materials Accounting ○ Toxics Reduction Planning ○ Reporting
	○ ~20 Priority non-NPRI Toxics (schedule 3)	○ Reporting
<b>Phase 2</b> ○ Subject to consultation ○ Potentially two to four years after Phase 1	○ ~275 NPRI Toxics (schedule 2)	○ Materials Accounting ○ Toxics Reduction Planning ○ Reporting
	○ ~135 non-NPRI Toxics (schedule 4)	○ Voluntary reductions ○ Ministry to review schedule 4 to determine, based on science, whether any toxics should be moved to other schedules so reduction actions can be taken

**Discussion Questions:**

14. Do you have any comments on the proposed list of toxics?
15. Do you have any comments on the Province's proposal to organize toxics into schedules and to tailor requirements for each schedule?
16. Do you have any comments on the proposed phase-in timetable?
17. Are there timing considerations that the government should consider in developing the phases?

**5.3.4 Thresholds**

Thresholds are important to determine what type and how many facilities would be subject to the new requirements.

It is proposed that thresholds for the designated list of toxics be based on the NPRI. Therefore, except where alternative thresholds apply, Ontario facilities would be subject to the proposed legislation if they use over 10,000 kg annually of a designated substance and employ 10 employees or more.

It is not proposed that new legislative requirements be applied to facilities below the 10-employee threshold. Small facilities, such as a community dry-cleaners or automotive mechanic shops, would be disproportionately affected by new requirements and would likely have more difficulty in achieving compliance because of their small number of employees, and potential lack of specialized



staff. The Ministry is proposing to target education and outreach and expert toxic reduction assistance measures for these small facilities in order to increase awareness and to encourage voluntary action to reduce toxics.

For chemicals with alternative thresholds, such as mercury with its reporting threshold of 5 kg, Ontario proposes to remain consistent with the NPRI and will adopt lower NPRI thresholds as they are put in place<sup>14</sup>.

Over time, the Ministry could consider developing lower thresholds for *priority* toxics (schedule 1 toxics) in order to focus even more effort on reducing the substances of highest concern. However this is a long-term approach and would be revisited as facilities develop Toxics Reduction Plans and begin to report on the implementation of their toxic reduction options.

### 5.3.5 Sectors

In addition to thresholds, identifying which sectors would be subject to new legislative requirements is also important to determine which facilities would fall under the new legislation.

The requirements under the proposed Strategy would only apply to facilities in those sectors which contribute the bulk of emissions. Ministry analysis, based on available NPRI reporting data, identifies the top sectors as manufacturing and mining. A variety of industry types are covered by the manufacturing sector and sub-sectors are listed in Table 2 to provide context.

It is therefore proposed that the Strategy would initially apply new requirements only to facilities in the manufacturing sector and facilities undertaking mineral processing in the mining sector.

**Table 2 – Proposed manufacturing sub-sectors subject to new requirements**

Food Manufacturing
Beverage and Tobacco Manufacturing
Textile Mills
Textile Product Mills
Clothing Manufacturing
Leather and Allied Product Manufacturing
Wood Product Manufacturing
Paper Manufacturing
Printing and Related Support Activities
Petroleum and Coal Products Manufacturing
Chemical Manufacturing

<sup>14</sup> For more information on alternate thresholds in the NPRI, refer to [www.ec.gc.ca/pdb/npri/npri\\_ath\\_e.cfm](http://www.ec.gc.ca/pdb/npri/npri_ath_e.cfm)

Plastics and Rubber Products Manufacturing
Non-Metallic Mineral Product Manufacturing
Primary Metal Manufacturing
Fabricated Metal Product Manufacturing
Machinery Manufacturing
Computer and Electronic Product Manufacturing
Electrical Equipment, Appliance and Component Manufacturing
Transportation Equipment Manufacturing
Furniture and Related Product Manufacturing
Miscellaneous Manufacturing

It is important to note that mining facilities undertaking mineral extraction and crushing activities would not be subject to legislative requirements under the proposed Strategy, because mineral extraction activity and the purely mechanical processing activities, such as crushing and grinding, have few methods to reduce or substitute the toxic metals being extracted or processed. Given that the toxics used and generated by these facilities still pose potential environmental and health risks, the Ministry will consider at a future date, based on additional analysis and consultations, a specialized approach to managing and mitigating those risks where appropriate.

**Discussion Questions:**

18. Are the NPRI thresholds appropriate for Ontario?
19. What are workable and effective approaches to address lower threshold emitters?
20. Are there additional sectors that the province should consider for inclusion?

#### 5.4 New Authorities to Address Toxics in Consumer Products

The Ministry proposes a number of new legislative authorities in the new legislation that would enable the Ministry to:

- ban or restrict the manufacture, distribution or sale of a designated toxic substance and products known to contain a toxic substance; and
- require manufacturers and/or sellers of consumer products to publicly report on products containing a toxic substance.

Sale of consumer products is governed by the federal government under a broad framework of legislation that includes the *Pest Control Products Act*, the *Hazardous Substances Act* and the *Food and Drugs Act*. Additionally, in 2008, the federal government introduced the *Canada Consumer Product Safety Act* (Bill C52) to further strengthen prevention and responses to dangers to human health or safety posed by consumer products.



The new authorities for consumer products being proposed by Ontario however, would allow the Province to act in a timely fashion when action is in the best interests of and needed for the health, safety and environment of Ontarians. The Province would continue to work closely with the federal government to ensure that federal authorities to protect the public from toxics in consumer products are being implemented when required. While these new provisions are being proposed, the Province continues to assess the workability of this approach and as part of this consultation will engage stakeholders and work with key partner ministries.

**Discussion Questions:**

21. *Do you support creating new authority for Ontario to ban or restrict toxics and consumer products containing toxics? Should this authority be limited to a designated list or be broad enough to include any toxic substance?*
22. *Should the legislation include authority for the Province to take precautionary action when, with limited scientific evidence, it suspects that a toxic substance poses a serious risk of harm to human health or the environment?*
23. *What are workable and effective ways to ensure the public has useful information on toxics and consumer products?*

## **5.5 Governance Model**

Based on the scope of the proposed Strategy and considering research into the experiences of other leading jurisdictions, the Ministry proposes to use one or more external parties to assist with certain activities resulting from the implementation of the legislation and the Strategy.

### **5.5.1 Ministry of the Environment**

Given the existing role of the Ministry in managing and administering environmental legislation, it is proposed that the Ministry would assume responsibility for the following Strategy components:

- Track compliance with requirements in legislation and regulations and undertake enforcement measures;
- Receive Toxics Reduction Plan summaries and reports;
- Ensure public disclosure of information as required by the legislation;
- Establish and administer contracts with external parties to deliver other elements of the Strategy;
- Administer any funding agreements that may be established; and
- Provide emerging policy and science oversight, such as updating the list of designated toxics.



### 5.5.2 Parties External to the Ministry

In order to manage the broader components of the Strategy, it is proposed that one or more parties external to the Ministry be engaged to:

- Administer, manage and deliver technical support to regulated facilities to undertake new requirements such as Toxics Reduction Plans;
- Serve as a centre of scientific research for emerging science, green chemistry and other innovations;
- Support the commercialization of green chemistry, technology, and other innovations;
- Attract and develop expertise in toxics reduction;
- Provide comprehensive training on toxics reduction planning;
- Potentially offer training and certification for individuals as toxics reduction planners;
- Provide public education, including publications, online resources and conferences; and,
- Offer academic training to expand the provincial pool of expertise.

The Ministry is currently exploring which types of external parties would be most useful and effective in performing the roles proposed. Options could include a government agency, a centre of excellence, or an institute based at an Ontario university or college to increase collaboration with academia and capitalize on academic knowledge and expertise.

Such bodies could undertake activities including technical assistance, research and education and outreach. One key role for these parties could be to establish a training and certification program to designate individuals as certified toxics reduction planners. These planners could work to assist facilities in completing their legislative requirements, such as writing Toxics Reduction Plans. This training and certification concept is currently being analyzed and would be discussed by the Ministry in consultations with stakeholders.

#### **Discussion Questions:**

24. *What should be the division of responsibilities between the government and other parties? Why?*
25. *What parties, such as a university, agency or centre of excellence, are most effective and efficient for particular functions and types of activities?*
26. *Do you have any comments on the proposal to establish a training and certification program for toxics reduction planners?*
27. *Would the services of a trained and certified toxics reduction planner be helpful to your operation? If not, why?*



## 6 Building Capacity and Support

There are many individuals and groups across the province that can have an influence on toxics reductions, including chemists and engineers in academia and the industrial sector which makes chemicals and incorporates them into processes and products. There are also consumers who purchase and use these products. All of these groups have a role to play in reducing our reliance on toxic chemicals.

As well, the government recognizes that solutions and known substitutions are not always readily available to deal with the use of toxics, and that there is a need over time to build capacity and focus our efforts to develop and implement less toxic alternatives.

To harness the broad range of Ontario expertise, the Ministry proposes the following approaches to help build capacity for toxics reduction:

- Technical assistance to regulated facilities in developing and implementing Toxics Reduction Plans;
- Partnerships and linkages with government agencies, stakeholders and academia to support research into emerging science and engineering dealing with less toxic alternatives and substitutions;
- Partnerships with health partners to empower front line health professionals to provide education, outreach and the dissemination of knowledge on toxics and their potential health and environmental effects to their patients; and
- Economic and other incentives to encourage innovations, reductions and substitutions, and to maximize the potential for economic benefits.

### Toxics Reduction Success Story

Under the Toronto Region Sustainability Program, which is a pollution prevention assistance program delivered by the Ontario Centre for Environmental Technology Advancement (OCETA), Metalon Technology Limited, a specialist 10-employee company in the manufacture of metal coatings, and winner of this year's environmental excellence award from the local Chamber of Commerce, is implementing various measures, including:

- Material substitution to non-VOC processes and non-toxic solvents which has resulted in:
  - 98 per cent reduction in the use of methyl ethyl ketone and 0.1 tonnes of VOCs annually.
  - 100 per cent reduction in use of toluene.
- Investing in ultra filtration of alkaline cleaning baths, which can reduce hazardous waste by 3.6 tonnes a year.
- Investing in energy and water conservation practices.

When implementation is complete, the pollution prevention measures are projected to eliminate 3.6 tonnes of hazardous waste and 0.1 tonnes of VOCs annually, with an overall payback over 1.4 years.

Source: OCETA website: Toronto Region Sustainability Program Case Studies  
[www.oceta.on.ca/TORSUS/MetalonCaseStudy.pdf](http://www.oceta.on.ca/TORSUS/MetalonCaseStudy.pdf)



## 6.1 Technical Assistance

The government proposes to assist regulated parties not only in understanding any new legislative obligations, but also in realizing and maximizing the benefits associated with reducing the use of toxics. The Ministry would provide education, outreach and appropriate guidance materials including information on materials accounting and preparation of Toxics Reduction Plans.

Input substitutions, new greener technologies and demonstration projects for reducing or eliminating toxics are potential options that facilities can consider implementing as a result of receiving technical assistance. This would facilitate the adoption of alternatives and better processes.

The Ministry is also exploring the use of on-site assistance for regulated facilities that could be provided by certified toxics reduction planners. These non-government experts, as mentioned in 5.5.2 – Parties External to the Ministry, could be trained and certified in leading-edge toxic reduction and pollution prevention techniques through the proposed external governance body.

### ***Discussion Questions:***

28. *What are the key opportunities regarding the implementation of toxics reductions?*
29. *What are the key barriers regarding the implementation of toxics reductions?*
30. *How can technical assistance best be targeted to reduce barriers?*
31. *What are the key input/process/technology changes you would need to make to implement toxic reduction actions, and what would be the anticipated effects on your facility as a result of implementing those actions?*

## 6.2 Partnerships and Linkages

The government proposes to support the development and implementation of green chemistry and pollution prevention through various new and existing collaborations and programs. Green chemistry is the design of chemical products and processes that reduce or eliminate the use and generation of toxic or hazardous substances. The Ministry would work with other agencies, academia and others that can help create solutions and help align existing programs and the Strategy.



**Discussion Questions:**

32. *What is needed to ensure that innovative alternatives make it to market (suggest three to five items)?*
33. *How should information on feasible alternatives be disseminated to maximize access to and use of this information?*
34. *Are you aware of, or can you suggest, other potential partnerships or linkages that may be useful?*
35. *How can innovations encourage green economic development in Ontario?*

**6.3 Economic and Other Incentives**

The government is assessing opportunities to encourage implementation of toxics reduction actions and to work towards a greening of the economy. Economic incentives could also be offered to facilities by other parties, such as insurance providers. Other jurisdictions have formed successful partnerships that make lower insurance rates available to facilities that reduce risk by reducing toxics. The Ministry is also exploring opportunities for other incentives such as industry leadership recognition and as part of its consultations will engage with industry, business and other stakeholders.

**Discussion Questions:**

36. *In what ways could incentives assist in toxics reduction?*
37. *What barriers to implementation of toxic reduction actions could incentives best address?*
38. *What incentives would be the most effective and efficient at encouraging toxics reductions?*
39. *What other types of incentives could assist in encouraging toxics reductions?*

**7 Informing Ontarians**

The Ministry is proposing to provide the public with accessible, easy-to-understand information about toxics, including carcinogens, in the environment and consumer products to help Ontarians make informed choices.

Telling Ontarians about toxic substances in our environment would provide valuable information to the public, industry, government and environmental and health organizations. Enhanced transparency would help keep Ontarians



informed about the use of toxics in the province and the progress in toxics reductions. Other jurisdictions have been successful in encouraging toxics reductions and compliance by providing the public with access to information on the use of toxics by facilities and outlining the planned toxic reduction actions explored by those facilities.

The Ministry is proposing to use education and outreach programs that would include a "one stop" web-based portal to provide straightforward, searchable information about the type and amount of toxic substances used and emitted in Ontario. This proposal could allow the public to be better informed about toxics at a community level and provide links to other organizations and sources of information on toxics reduction.

The Ministry is also exploring the use of social marketing campaigns to inform Ontarians about the health and environmental benefits of using alternatives to toxics, such as using less-toxic substitutes or greener products. Both of these approaches would be developed in consultation with stakeholders and partners to determine the most effective ways of reaching and meeting the needs of Ontarians.

**Discussion Questions:**

40. *What information would you like to know about toxics in your community?*
41. *What concerns do you have regarding existing reporting systems and how could we improve upon them?*
42. *What organizations could the Ministry work with to help inform Ontarians?*
43. *What types of information do consumers need to make informed choices when purchasing products that may contain toxics?*
44. *What is the most effective way, such as a website or through outreach, to educate consumers?*

## **8 Additional Information**

### **8.1 The Opportunities and Challenges facing Ontario**

Statistics show that Ontario is one of the top dischargers of toxics in North America and the number one discharger in Canada:



- Ontario industries release the second largest amount of recognized developmental and reproductive toxicants in North America, behind Tennessee.<sup>15</sup>
- Ontario industries release the fifth largest amount of known and suspected carcinogens in North America behind Texas, Ohio, Indiana, and Louisiana.<sup>16</sup>
- Ontario industries account for 36 per cent of the total Canadian discharges of reportable chemicals into the air and 50 per cent of discharges into water.<sup>17</sup>

These statistics persist despite action over the last 30 years, including collaborative action by all levels of government, industry and other stakeholders. Furthermore, it can take many years to see improvements in the environment if the detrimental effects of toxic chemicals are prolonged. They can remain in the soil or sediment, and build up in wildlife, impairing our environment and reducing our enjoyment of our lakes.

Thousands of Ontario facilities engaged in manufacturing, mining, and other activities routinely use toxic substances, and generate toxic releases and wastes. Due in part to current economic conditions, many of these facilities, particularly manufacturers, are under pressure to operate more efficiently to remain competitive. One potential source of often overlooked cost savings is innovative action to reduce toxics.

Experience from other jurisdictions demonstrates that facilities can achieve net cost savings over time through toxics reduction. Savings can be in the form of process efficiencies within the facility, such as capturing waste material for other uses in the process rather than disposal, or through reducing the burden of compliance with existing and future government legislation, including lessening the time and costs of reporting to pollutant registers, such as for hazardous waste under Ontario Regulation 347. Although toxics reduction opportunities often require upfront capital investments, progressive, forward-looking companies will proceed if the anticipated benefits outweigh the costs.

## 8.2 Links to Health

The combined effects of toxic chemicals on our health are difficult to measure. Full toxicological evaluations have only been conducted on a fraction of single substances and groups of substances. However, there is growing scientific concern over the implications of the wide range of exposures to toxic chemicals

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<sup>15</sup> North American Commission on Environmental Cooperation, 2006. *Toxic Chemicals and Children's Health in North America*, p.25.

<sup>16</sup> *Ibid.*, p.23.

<sup>17</sup> Environment Canada, National Pollutant Release Inventory, 2005.

that occur over the human lifespan, particularly during biologically sensitive periods, such as pre-natal and early childhood development.

It is also important to recognize that chemical exposure represents only one of many factors, including social, economic, genetic, and cultural characteristics that can influence the initiation, progression and recurrence of many diseases.

Although the precise effects of multiple toxics are not known, a 2006 report by the Commission for Environmental Cooperation (CEC)<sup>18</sup> identified adverse childhood health effects of particular concern in North America that may be associated with environmental pollution including:

- cancer;
- learning, developmental and behavioural disabilities;
- impaired endocrine function;
- birth defects; and
- respiratory problems, such as asthma.

### **8.3 Environmental Health in the Great Lakes Basin**

Over 90 per cent of Ontario's population lives in the Great Lakes Basin. Although the lakes represent a vast resource of freshwater and support a diverse economy, the ecosystem is sensitive to pollution and is adversely affected by direct discharges of contaminants into the air and water as well as to municipal sewage treatment plants, which are not designed to treat complex mixtures of chemical compounds.

There are well established examples of how toxics have negatively affected the Great Lakes. These include impairment of survival, reproduction and/or development of herring gulls, linked to accumulation of persistent toxics such as DDT, PCBs, dioxins and/or mercury, and the neuro-behavioural effects (nervous system effects on behaviour) in children whose mothers consumed PCB-contaminated Great Lakes fish during pregnancy. Although some successes have been achieved in reducing releases, sediment in many areas of the lakes continues to be contaminated with compounds such as mercury, PCBs and dioxins, resulting in exposure by aquatic biota, accumulation through the food chain and ultimately, advisories being placed on fish consumption.

### **8.4 Role of the Canadian Government and the Role of Municipalities**

Jurisdiction for the environment in Canada is shared between the federal and provincial governments. In general, the federal government has the responsibility for matters of national concern, whereas the provinces tend to manage matters of a local nature, such as industrial and municipal emissions.

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<sup>18</sup>Commission for Environmental Cooperation Secretariat "Activity Report", 2006, pg. 2  
[www.cec.org/files/pdf/PUBLICATIONS/ED-Act-Report-2006\\_en.pdf](http://www.cec.org/files/pdf/PUBLICATIONS/ED-Act-Report-2006_en.pdf)



Municipalities may further impose reporting requirements or bylaws. In particular, the City of Toronto is currently developing its Environmental Reporting and Disclosure Program, which would aim to track and reduce 25 key toxic substances present in Toronto's environment. Toronto is proposing that the program would require businesses and municipal operations to track and report to the public on their use and emission of toxics that have been designated as of priority health concern. Additionally, the program would support affected businesses in undertaking actions to reduce those toxics.

To learn more about the City of Toronto's program, please visit the following link: [www.toronto.ca/health/hphe/enviro\\_info.htm](http://www.toronto.ca/health/hphe/enviro_info.htm)

As the Strategy is developed the Ministry will work to consult with the City of Toronto to better align the approaches to reducing toxics and to minimize duplication and potential burdens on Ontario facilities.

### **8.5 Chemicals Assessment and Management**

Because toxic chemicals are of national or international concern, the federal government regulates their importation, use, manufacture and disposal, primarily through the *Canadian Environmental Protection Act (CEPA)*.

In 1994, the federal government created an inventory of the 23,000 chemicals used in Canadian commerce up to the late 1980s. This inventory is known as the Domestic Substances List (DSL)<sup>19</sup>. At the same time, New Substance Notification regulations were passed under CEPA, requiring any substance not on the DSL to be screened and potentially controlled or prevented from entering the Canadian market place. In the last few years the federal government has begun the work of assessing the potential risk of the DSL substances to human health and the environment.

In 2006, the federal government announced a Chemicals Management Plan that includes a Challenge Program for approximately 200 high priority chemicals from the DSL.<sup>20</sup> This program issues challenges to industry to provide information on batches of approximately 15 to 30 of these chemicals every six months. Based on the information received, the federal government assesses whether the chemical is CEPA toxic, and determines appropriate risk management measures. For instance, a recent outcome of this program was the federal release in April 2008 of its draft assessment of bisphenol-A (BPA), declaring it toxic under the CEPA and proposing that baby bottles containing BPA be banned from the marketplace.

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<sup>19</sup> For more information on the Domestic Substances List, refer to [www.ec.gc.ca/ceparegistry/subs\\_list/Domestic.cfm](http://www.ec.gc.ca/ceparegistry/subs_list/Domestic.cfm)

<sup>20</sup> The Government of Canada "Challenge" for chemical substances that are a high priority for action - [www.chemicalsubstanceschimiques.gc.ca/challenge-defi/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/challenge-defi/index_e.html)



## 8.6 Consumer Products

The federal government has primary jurisdiction over the control of consumer products through a broad legislative framework that includes the:

- *Hazardous Products Act*;
- *Canadian Environmental Protection Act*;
- *Consumer Packaging and Labeling Act*; and
- *Pesticides Control and Products Act*.

In April 2008, the federal government tabled amendments to the *Food and Drugs Act (Bill C51)* and introduced the *Canada Consumer Product Safety Act (Bill C52)* to strengthen prevention and response to dangers to human health or safety posed by consumer products.

## 8.7 Role of the Provincial Government

The Province also has a number of important roles in controlling chemicals. Ontario controls releases of chemicals to the environment through the *Environmental Protection Act (EPA)* and the *Ontario Water Resources Act* and addresses worker exposure to chemicals through the *Occupational Health and Safety Act*. In some cases, Ontario also carries out individual assessments of chemicals, for example, when setting air standards for over 300 air contaminants related to local air quality. Ontario also plays a role in monitoring and reporting of airborne contaminants and hazardous waste and also works with other Canadian jurisdictions in setting national criteria for chemicals.

When it comes to consumer products, Ontario has targeted legislative provisions to control specific aspects of these products including: the *Pesticides Act*; the *Cosmetic Pesticides Ban Act, 2008* which, when regulations are in place, will control the use and sale of listed pesticides for cosmetic purposes; and the EPA which includes controls on the disposal of certain consumer products.

## 8.8 Other Jurisdictions

The Ministry has undertaken analyses of other jurisdictions' toxics reduction initiatives, including those in the United States, Canada, and the EU to help guide the development of Ontario's toxics legislation and Strategy.

Most jurisdictions require companies to report on toxics emitted, while proactive jurisdictions such as Massachusetts, New Jersey, California, Maine and Washington require companies to develop plans to reduce toxics. The Massachusetts *Toxic Use Reduction Act* resulted in the state being the first jurisdiction to focus legislative requirements on the use of toxic chemicals. The Massachusetts model has been one of the most successful in reducing toxics use and has a high industry participation rate. The New Jersey *Pollution Prevention Act* is another successful pollution prevention planning instrument similar to Massachusetts' Act. Some jurisdictions, such as California, have taken



a different route by requiring labelling of products that contain or may contain toxic substances.

You can learn more about the Massachusetts *Toxic Use Reduction Act* by visiting the Massachusetts Department of Environmental Protection website: [www.mass.gov/dep/toxics/toxicsus.htm](http://www.mass.gov/dep/toxics/toxicsus.htm)

You can also learn more about the New Jersey *Pollution Prevention Act* by visiting the New Jersey Department of Environmental Pollution website: [www.nj.gov/dep/opppc/](http://www.nj.gov/dep/opppc/)

REACH is a new EU regulation on chemicals and their safe use. It deals with the registration, evaluation, authorization and restriction of chemical substances. The new law was enacted on June 1, 2007 and imposes duties on users, manufacturers and importers of chemicals. It also requires manufacturers and importers of chemicals to obtain relevant information about their substances and to use data to manage them safely. You can learn more about REACH by visiting the EU website: [ec.europa.eu/environment/chemicals/reach/reach\\_intro.htm](http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm)



## 9 Appendix 1 – Sources for a List of Toxic Substances

Ministry experts, in consultation with partner Ministries such as Health and Long-Term Care and key stakeholders including Cancer Care Ontario, have undertaken analyses to establish Ontario's proposed list of toxic substances. Additionally, the Expert Panel has recommended that Ontario's Strategy address a broad list of toxic substances, including carcinogens that are emitted into the environment, or used in consumer products and/or processes, to be the focus of action in the short term. The Expert Panel further recommended increasing the list with time.

Ontario's proposed list is drawn from the following sources:

- The NPRI;
- O.Reg.127/01 (currently one chemical: acetone);
- carcinogens identified by the Cancer and the Environment Stakeholder Group's report entitled *Cancer and the Environment in Ontario: Gap Analysis on the Reduction of Environmental Carcinogens*;
- selected carcinogens and reproductive toxins listed in the state of California's *Safe Drinking Water and Toxic Enforcement Act, 1986* (known as Proposition 65); and,
- Great Lakes Regional Toxic Air Emissions Inventory, administered by the Great Lakes Commission.

### **National Pollutant Release Inventory (NPRI)**

[www.ec.gc.ca/pdb/npri/npri\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/npri/npri_home_e.cfm)

Under the *Canadian Environmental Protection Act, 1999* (CEPA 1999), industries meeting specific criteria are required to report their emissions through the NPRI, which is a national inventory of pollutants released, disposed of and sent for recycling by facilities across Canada. The data reported annually through the NPRI provides the most comprehensive information available on Ontario's emissions, recycling and disposal of toxic substances and the facilities that use them. The 2006 NPRI list included approximately 320 unique toxic substances that are released into the air, land and water. Ontario facilities reported release of approximately 215 NPRI substances, with an average between four and five substances per facility.

### **Ontario Regulation 127/01**

[www.ene.gov.on.ca/envision/monitoring/monitoring.htm](http://www.ene.gov.on.ca/envision/monitoring/monitoring.htm)

In 2004 Ontario harmonized its requirements for reporting air contaminants with those of the NPRI with the exception of acetone, which is still reportable under Ontario Regulation 127/01 under the *Environmental Protection Act*.

**Cancer Care Ontario Gap Analysis Report**

[www.cancer.ca/vgn/images/portal/cit\\_86751114/28/5/100194442odie\\_fd\\_tsabc\\_pledge.pdf](http://www.cancer.ca/vgn/images/portal/cit_86751114/28/5/100194442odie_fd_tsabc_pledge.pdf)

As part of the Cancer and the Environment Stakeholder Group, Cancer Care Ontario released in fall 2007 a report entitled *Cancer and the Environment in Ontario: Gap Analysis on the Reduction of Environmental Carcinogens* containing a list of priority carcinogens requiring action. This list has been screened by the Ministry and the Expert Panel to retain 174 chemicals that are known, probable and/or reasonably anticipated to be carcinogenic, 105 of which are not found on the NPRI.

**Great Lakes Regional Toxic Air Emissions Inventory**

[wiki.glin.net/display/RAPIDS/Home](http://wiki.glin.net/display/RAPIDS/Home)

The Great Lakes Regional Toxic Air Emissions Inventory contains information on approximately 200 substances released into the air across eight U.S. states and two provinces in the Great Lakes Basin. Over 100 of these substances are released in Ontario, including approximately 70 that are not on the NPRI. The inventory is administered by the Great Lakes Commission.

**Proposition 65**

[www.oehha.org/prop65.html](http://www.oehha.org/prop65.html)

The State of California's *Safe Drinking Water and Toxic Enforcement Act, 1986* (known as Proposition 65) requires the state to publish a list of substances known to cause cancer, birth defects and other reproductive harm. The list is updated every year and includes approximately 775 chemicals.



## 10 Appendix 2 – Ontario's Proposed Priority Toxic Substances

### Development of the Priority List for Schedule 1

The Ministry reviewed emissions data to air, water and land from the 2006 NPRI.

For chemicals reported to be released to air and water, the Ministry then applied a hazard ranking model (scoring system) to identify chemicals of potential concern to the Ontario public or the environment. Two different models, The Risk-Screening Environmental Indicators (RSEI)<sup>21</sup> model (hazard scores for ranking risks of Ontario emissions to human health) and the SCRAM model (Scoring and Ranking System for Persistent, Bioaccumulative, and Toxic Substances for the North American Great Lakes-Resulting Chemical Scores and Rankings)<sup>22</sup>, provided hazard scores to rank the potential risk of Ontario emissions to both human health and the environment. The combination of emissions data and hazard scores provided a ranked list of chemicals that were of potential concern based on either/or a combination of: high emission + moderate toxicity; low emission + high toxicity or high emission + high toxicity.

The list of chemicals developed from emissions and hazard scores was then compared to lists of chemicals identified in Ministry programs (e.g., priorities for standards development, contaminants in record of site condition reports) as well as priority lists from other jurisdictions. These additional considerations were used to refine and finalise the priority list. Due to the consideration of both environmental and human health concerns as well as volume of emissions, the list of approximately 45 NPRI priority toxics represents a diverse group of chemicals. Some of these chemicals are associated with industrial use while others are known only as by-products of industrial processes and/or emissions. Some are of high concern to human health while others have been flagged based on their high emissions to the Ontario environment.

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<sup>21</sup> Risk-Screening Environmental Indicators - [www.epa.gov/opptintr/rsei/](http://www.epa.gov/opptintr/rsei/)

<sup>22</sup> Geisy et al., Human and Ecological Risk Assessment, Volume 8, Issue 3 July 2002 , pages 537 – 557

<b>Schedule 1: Priority List of NPRI Toxics and Carcinogens</b>	
<b>Priority Toxics</b>	<b>Priority Carcinogens</b>
Aluminum and compounds	Acrylamide
Arsenic and compounds*	Asbestos
Biphenyl	Benzene
Cadmium and compounds*	Chlorinated toluenes***
Chlorine	Butadiene 1,3
Chromium and compounds including Hexavalent Chromium*	Chloromethyl Oxirane (aka epichlorohydrin)
Cobalt and compounds	Creosote
Copper and compounds	Dioxins and Furans
Cyanides	Ethylene Oxide
Dichloroethane-1,2	4,4'-methylenebis (2-chloroaniline)
Ethylbenzene	Styrene Oxide
Formaldehyde*	Sulfuric Acid
Hexachlorobenzene	Thorium Dioxide
Hydrochloric acid	Trichloroethylene
Lead and compounds*	
Manganese and compounds	
Mercury and compounds	
Methanol	
Nickel and compounds*	
Phenol	
Selenium and compounds	
Silver and compounds	
Tetrachloroethylene*	
Toluene	
PAHs** (some PAHs*)	
Triethylamine	
Vanadium and compounds	
Vinyl Chloride*	
Xylene	
Zinc and compounds	

\* Known and probable carcinogens from Gap Analysis Report

\*\* PAHs (polycyclic aromatic hydrocarbons) includes, but is not limited to, naphthalene and benzo-a-pyrene

\*\*\* Chlorinated toluenes:  $\alpha$ -chlorinated toluenes (benzal chloride, benzyl chloride, benzotrichloride combined mixtures)



## Schedule 2: Remainder of NPRI Substances

1,2-benzenediol	Trichlorobenzene, 1,2,4-	Ethyl acetate	PM2.5
1,4-benzenediol	Trichloroethane, 1,1,2-	Ethyl alcohol	<i>p</i> -Nitroaniline
1-Propene, 3-chloro-	Vinyl acetate	Ethyl chloroformate	Polymeric
2-Nitrophenol	Vinylidene chloride	Ethylene	diphenylmethane
Acetaldehyde	Diethyl sulfate	Ethylene glycol butyl ether	diisocyanate
Acetonitrile	2-Methyl-3-hexanone	acetate	Potassium bromate
Acetophenone	Acetylene	Ethylene glycol hexyl ether	Propane
Acrolein	Adipic acid	Ethylene Glycol Monomethyl	Propargyl alcohol
Acrylic acid	Alkanes, C10-13, chloro	Ether (EGME) or	Propylene
Acrylonitrile	Alkanes, C6-18, chloro	2-Methoxyethanol	Propylene glycol butyl
Antimony & compounds	Allyl alcohol	Fluorine	ether
<i>Bis</i> (2-ethylhexyl)	alpha-Pinene	Formic acid	Propylene glycol methyl
phthalate	Ammonia (total)	Furfuryl alcohol	ether acetate
Bromomethane or methyl	Aniline (and its salts)	Glycine, <i>N,N</i> -	Pyridine
bromide	Antraquinone	bis(carboxymethyl)- (NTA)	<i>sec</i> -Butyl alcohol
Butylene oxide, 1,2- //	Benzoyl peroxide	Halon 1211 or	Sodium fluoride
Oxirane, ethyl-	beta-Phellandrene	Bromochlorodifluorometh-	Sodium nitrite
Calcium cyanamide	beta-Pinene	ane	Solvent naptha light
Carbon disulphide	<i>Bis</i> (2-ethylhexyl) adipate	Halon 1301 or	aliphatic
Carbon tetrachloride	Bisphenol A aka Phenol,	Bromotrifluoromethane	Solvent naptha medium
Carbonyl sulphide	4,4 -(1-	HCFC-122 (and all isomers)	aliphatic
Chloroacetic acid	methylethylidene)bis-	HCFC-123 (and all isomers)	Stoddard solvent
Chlorobenzene	Boron trifluoride	HCFC-141b	Sulfuric acid, dimethyl
Chloroethane	Bromine	HCFC-142b	ester
Chloroform or	Bromo-2-chloroethane, 1-	HCFC-22	Sulphur dioxide
trichloromethane	Butane	HCFCs (124)	Sulphur hexafluoride
Chloromethane	Butene	Heavy alkylate naptha	Terpene <sup>29</sup>
Chloromethylbenzene	Butoxyethanol, 2-	Heavy aromatic solvent	<i>tert</i> -Butyl alcohol
Cresol (includes o,p)	Butyl acrylate	naptha	Tetrachloroethane, 1,1,1,2-
Cumene	Butyl benzyl phthalate	Heptane	Tetracycline hydrochloride
Diaminotoluene, 2,4-	Butyraldehyde	Hexachlorophene	Tetrahydrofuran
Dibutyl phthalate	C.I. Acid Green 3	Hexane (all isomers	Total particulate matter
Dichlorobenzene	C.I. Basic Green 4	excluding <i>n</i> -hexane	Trimethylbenzene
( <i>p</i> -dichlorobenzene),	C.I. Basic Red 1	Hexene	Trimethylbenzene, 1,2,4-
1,4-	C.I. Direct Blue 218	Hydrotreated light distillate	Trimethylfluorosilane
Dichloromethane	C.I. Disperse Yellow 3	<i>i</i> -Butyl alcohol	Trimethylhexamethylene
Dichloropropane, 1,2-	C.I. Solvent Orange 7	Iron pentacarbonyl	diisocyanate, 2,2,4-
Diethanolamine	Calcium fluoride	Isobutyraldehyde	Trimethylhexamethylene
Dimethyl phthalate	Carbon monoxide	Isophorone diisocyanate	diisocyanate, 2,4,4-
Dinitro- <i>o</i> -cresol, 4,6-	CFC-11	Isopropyl alcohol	Volatile organic
Dinitrotoluene, 2,4-	CFC-114	Isosafrole	compounds
Di- <i>n</i> -octyl phthalate	CFC-115	Light aromatic solvent	White mineral oil
Dioxane, 1,4-	CFC-12	naptha	3-Chloro-2-methylpropene
Ethyl acrylate	dichlorodifluoromethane	Lithium carbonate	Benzoyl chloride
Ethylene glycol	CFC-13	Mercaptobenzothiazole, 2-	Chlorendic acid
Ethylene thiourea	Chlorine dioxide	Methyl acrylate	Dichlorobenzidine
Hexachlorocyclopenta-	Chloropropionitrile, 3-	Methylenebis(4-	dihydrochloride, 3,3'-
diene	Crotonaldehyde	isocyanatocyclohexane),	Isoprene
Hexachloroethane	Cumene hydroperoxide	1,1-	Methanone, bis[4-
Hydrazine	Cycloheptane	Methylindan	(dimethylamino)phenyl]-
Hydrogen cyanide	Cyclohexane	Methylpyridine, 2-	aka Michler's ketone
Hydrogen fluoride	Cyclohexanol	Mineral spirits	Safrole
Hydrogen sulphide	Cyclohexene	Molybdenum trioxide	Thiourea
Maleic anhydride	Cyclooctane	Myrcene	Toluene diisocyanate ( aka
Methyl ethyl ketone	D&D red no 19	Naptha	Benzene, 1,3-

Methyl iodide	Decabromodiphenyl oxide	Naphtha (petroleum), hydrotreated heavy	diisocyanatomethyl-)
Methyl isobutyl ketone	Decane	Naphthalenol, 1-(phenylazo)-	Toluene-2,6-diisocyanate
Methyl methacrylate	dichlorobenzene,1,2-//o-	2- // C.I. Solvent Yellow 14	Pyridine
Methyl <i>tert</i> -butyl ether	Dichlorobenzene	n-Butyl acetate	
Methylene <b>bis</b> (phenylisocyanate)	Dichlorophenol, 2,4-	<i>n</i> -Butyl alcohol	
Methylenedianiline-4,4'	Dicyclopentadiene	Nitrate ion	
N,N-Dimethylaniline	Diethyl phthalate	Nitric acid	
N,N-Dimethylformamide	Diethylene glycol butyl ether	Nitrogen oxides (NOx)	
<i>n</i> -Hexane	Diethylene glycol ethyl ether acetate	Nitroglycerin	
Nitrobenzene	Dihydronaphthalene	N-Methyl-2-pyrrolidone	
Nitropropane, 2-	Dimethyl ether	N-Methylolacrylamide	
Phosgene	Dimethyl phenol	N-Nitrosodiphenylamine	
Phosphorus (yellow or white)	Dimethylamine	Nonane <sup>29</sup>	
Phthalic anhydride (1,3- isobenzofurandione)	Dinitrotoluene	Nonylphenol and its ethoxylates (includes Bisphenol A)	
<i>p</i> -Phenylenediamine	Dinitrotoluene, 2,6-	Octane <sup>29</sup>	
<i>p</i> -Quinone	Diphenylamine	Octylphenol and its ethoxylates	
Propionaldehyde	Di- <i>t</i> -butyl-4-methylphenol, 2,6-	<i>o</i> -Phenylphenol	
Propylene oxide	D-Limonene	Paraldehyde	
Quinoline	Dodecane <sup>29</sup>	Pentachloroethane	
Styrene	Ethanol, 2-methoxy-, acetate	Pentane	
Tetrachloroethane, 1,1,2,2,-	Ethoxyethanol, 2-	Pentene	
Tetraethyl lead	Ethoxyethyl acetate //	Peracetic acid	
Titanium tetrachloride	Ethanol, 2-ethoxy-, acetate, 2-	Phenyl isocyanate	
Toluene-2,4-diisocyanate		PM10	



### Development of a Proposed Priority Toxics List for Schedule 3

Non-NPRI chemicals were identified as priorities for data gathering through a screening process recommended by the Expert Panel. The non-NPRI substances included in schedule 4 were screened according to their categorization under the federal Domestic Substances List (DSL)<sup>23</sup>, which includes information on persistence, bioaccumulation, potential for human exposure as well as inherent toxicity to human health and the environment. The Ministry assigned a numerical value to each DSL "yes/no" categorization criterion to develop a numerical score for each chemical. Top scoring chemicals, excluding pesticides and chemicals with constituents already captured on the priority list, were reviewed by the Expert Panel and a final list of approximately 20 chemicals was recommended to the Ministry for data gathering in phase 1 of the Strategy.

Some of the 20 chemicals have already been identified through the DSL categorization as high priority for assessment under the federal Challenge Program. Provincial data gathering under the Strategy will coordinate with the federal government to maximize data exchange.

#### Schedule 3: Non-NPRI Substances Priority List

1,2,3-Trichloropropane  
2,2-Bis(bromomethyl)-1,3-propanediol  
2-Bromopropane  
3,3'-Dimethoxybenzidine  
3,3'-Dimethylbenzidine hydrochloride  
3,3'-Dimethylbenzidine  
Auramine  
Beryllium & compounds  
Dichloroethane, 1,1-  
Dimethylbenz(a)anthracene  
Ethylene dibromide  
Hexachloro-1,3-butadiene  
Isophorone  
Methylenebis(N,N-dimethyl) benzenamine 4,4'-  
Pentachlorophenol  
Silica  
Tetrafluoroethylene  
Tribromomethane

<sup>23</sup> [www.ec.gc.ca/CEPARRegistry/subs\\_list/dsl/DSLsearch.cfm](http://www.ec.gc.ca/CEPARRegistry/subs_list/dsl/DSLsearch.cfm)

## Schedule 4: Remainder of Non-NPRI Substances List

2,4-D	Bromodichloromethane	Hexamethyl phosphoramidate (d)	PhiP(2-Amino-1-1methyl-6-phenylimidazol[4,5-b]pyridine)
1,1'-Dimethylhydrazine	C.I Basic Red 9 monohydrochloride	Hexamethylene-1,6-diisocyanate	Phosphine
1,2-Dibromo-3-chloropropane	Captafol	Hydrazo benzene hydrochloride	Potassium dimethyldithiocarbamate
1,2-Dimethylhydrazine	Captan	Indium phosphide	Propoxur
1,3-Propane sultone	Carbaryl	IQ (aka 2-amino-3-methylimidazol(4,5-f)quinoline)	Shale oils
1,6-dinitropyrene	Chloramben	Isopropanol manufacture	Sodium dimethyldithiocarbamate
1,8-dinitropyrene	Chlordane	Lindane	Talc containing asbestiform fibres
1-Amino-2,4-dibromo-anthraquinone	Chlordecone (aka kepone)	m-Dinitrobenzene	Tetranitromethane
1-Amino-2-methylantrquinone	Chlorinated paraffins chlorinated toluene one form (additional)	MeIQ (aka 2-amino-3,4-dimethylimidazol (4,5-f)quinolene)	Thioacetamide
1-Bromopropane	Chloromethyl methyl ether (d)	Methyl isocyanate	Thiodianiline-4,4'
2- Aminoanthraquinone	Chloroprene	Methylenedianiline-4,4' dihydrochloride	Toxaphene
2,3-Dibromo-1-propanol	coal tar	Methylhydrazine	Trichloroethane, 1,1,1-trichlorophenol, 2,4,5 trichlorophenol, 2,4,6-Trifluralin
2,4-Diaminoanisole sulfate	Coal tar pitch volatiles coke oven emissions	mirex	Trimethylpentane-2,2,4
2-Methylaziridine	DDT/DDD/DDE	Nitropyrene, 1-N-Nitrosodiethanolamine	Tris(2,3-dibromopropyl)phosphate-urethane
2-Naphthylamine	Di(2-ethylhexyl)phthalate	N-Nitrosodiethylamine (NDEA)	Vinyl bromide
2-Nitroanisole	Diazoaminobenzene	N-Nitrosodimethylamine (d) NDMA	Vinyl cyclohexene dioxide
4-(N-Nitrosomethylamino)-1-1(3-pyridyl)1-butanone (aka NNK)	Diazomethane	N-nitrosomethylvinylamine	Vinyl fluoride
4,4'-Diaminodiphenylether (aka 4,4-oxydianiline)	Dibenz(a,h)acridine	N-nitrosomorpholine	
4-Aminobiphenyl (4-amino-diphenyl)	Dibenzo(a,e)pyrene	N-Nitroso-N-methylurea	
4-Chloro-o-phenylenediamine	Dibenzo(a,h)pyrene	N-Nitrosornicotine	
4-chloro-o-toluidine	Dibenzo(a,l)pyrene	N-Nitrosopiperidine	
4-Dimethylaminoazobenzen e	Dibenzofuran	N-nitrosopyrrolidine (NPYR)	
4-Nitrobiphenyl	Dichlorobenzidine-3,3'	N-Nitrososarcosine	
5-Methoxyypsoralen	Dichloropropene, 1,3-Dichlorvos	o-Anisidine	
5-methylchrysene	Diglycidyl resorcinol ether (DGRE)	o-Anisidine hydrochloride	
6-Nitrochrysene	Di-isodecyl phthalate (DIDP)	Ochratoxin A	
Acetamide	Dimethyl sulfate	o-Dinitrobenzene	
Acetylaminofluorene-2	Dimethylcarbamoyl chloride	o-Toluidine	
Alkyl lead	Di-n-hexyl phthalate (DnHP)	o-Toluidine hydrochloride	
Amitrole	dinitrophenol, 2,4-diphenylhydrazine, 1,2-Disperse Blue 1	p,p'-Methoxychlor	
Atrazine	Ethyl-4,4'-dichlorobenzilate	Parathion	
Aziridine	Fine mineral fibres	PBBs	
Benzene, (chloromethyl)-	Gallium arsenide	PCBs	
Benzene, 1,2-dimethoxy-4-(2-propenyl)- (aka methyleugenol)	Glycidol	p-Cresidine	
Benzidine (including benzidine based dyes)	Glycol Ethers	p-Dinitrobenzene	
Benzoic trichloride	Heptachlor + Heptachlor-epoxide	Pentachloronitrobenzene	
beta-Propiolactone		Phenol, (1,1-dimethylethyl)-4-methoxy-	
Bis(2-chloroethyl) ether			
bis(Chloromethyl) ether			



